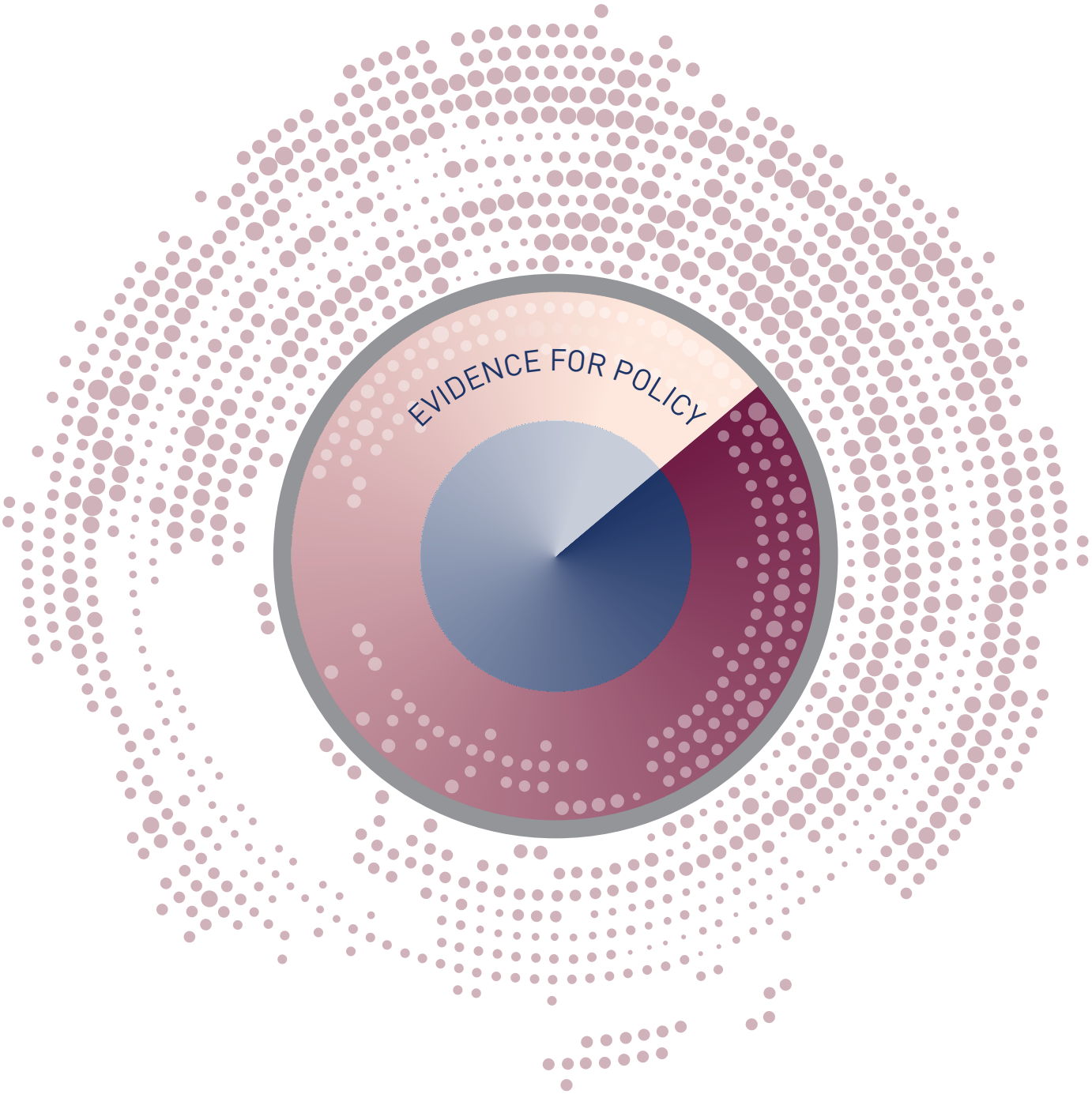
MACRO
ECONOMIC
FORECASTING
September 2018

QUARTERLY ECONOMIC COMMENTARY

AUTUMN 2018

KIERAN MCQUINN, CONOR O'TOOLE AND PHILIP ECONOMIDES



ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

QUARTERLY ECONOMIC COMMENTARY

Kieran McQuinn
Conor O'Toole
Philip Economides

Autumn 2018

The forecasts in this *Commentary* are based on data available by 13 September 2018

Draft completed on 17 September 2018

A subscription to the *Quarterly Economic Commentary* costs €327 per year, including VAT and postage.

ISBN 978-0-7070-0467-9
ISSN 0376-7191
DOI https://doi.org/10.26504/qec2018aut

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Special Articles are published in the *QEC* in order to foster high-quality debate on various aspects of the Irish economy and Irish economic policy. They are subject to refereeing prior to publication.

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	2015	2016	2017	2018	2019
Output (Real Annual Growth %)					
Private Consumer Expenditure	3.6	4.0	1.6	2.9	2.5
Public Net Current Expenditure	1.4	3.5	3.9	4.0	4.5
Investment	50.8	51.7	-31.0	-6.3	9.8
Exports	39.3	4.4	7.8	7.5	5.2
Imports	33.2	18.5	-9.4	-0.7	6.0
Gross Domestic Product (GDP)	25.1	5.0	7.2	8.9	4.5
Gross National Product (GNP)	13.8	11.5	4.4	8.9	4.7
Prices (Annual Growth %)					
Consumer Price Index (CPI)	-0.3	0.0	0.3	0.7	1.1
Growth in Average Hourly Earnings	2.8	2.5	1.5	2.5	2.9
Labour Market					
Employment Levels (ILO basis ('000))	2,057	2,132	2,194	2,257	2,313
Unemployment Levels (ILO basis ('000))	226	195	158	136	123
Unemployment Rate (as % of Labour Force)	10.0	8.4	6.7	5.7	5.1
Public Finance					
General Government Balance (€bn)	-4.9	-1.4	-1.0	-0.7	0.3
General Government Balance (% of GDP)	-1.9	-0.7	-0.3	-0.2	0.1
General Government Debt (% of GDP)	76.8	73.5	68.4	64.2	60.7
External Trade					
Balance of Payments Current Account (€bn)	11.6	-11.4	24.9	40.6	45.6
Current Account (% of GNP)	5.8	-5.1	10.7	16.0	16.6

Note: Detailed forecast tables are contained in an Appendix to this *Commentary.*

NATIONAL ACCOUNTS 2017

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2016	2017	Change in 2017		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	96.6	99.9	3.1	1.3	1.6
Public Net Current Expenditure	27.8	29.6	6.5	2.5	3.9
Gross Fixed Capital Formation	97.6	69.0	-29.3	2.4	-31.0
Exports of Goods and Services	328.2	352.6	7.4	-0.3	7.8
Physical Changes in Stocks	6.4	3.5			
Final Demand	**557.0**	**554.6**	**-0.4**	**0.5**	**-0.9**
less:					
Imports of Goods and Services	271.1	263.3	-7.9	1.6	-9.4
Statistical Discrepancy	2.1	2.8			
GDP at Market Prices	**273.2**	**294.1**	**7.6**	**0.4**	**7.2**
Net Factor Payments	-51.1	-61.0			
GNP at Market Prices	**222.2**	**233.1**	**4.9**	**0.5**	**4.4**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2016	2017	Change in 2017	
	€ bn	€ bn	€ bn	%
Agriculture	3.3	4.2	0.9	27.0
Non-Agriculture: Wages, etc.	81.8	85.7	3.9	4.7
Other	102.2	113.3	11.1	10.8
Adjustments: Stock Appreciation	1.1	0.0		
Statistical Discrepancy	0.5	-2.8		
Net Domestic Product	**236.7**	**250.6**	**13.9**	**5.9**
Net Factor Payments	-51.1	-61.0	-9.9	19.3
National Income	**185.6**	**189.6**	**4.0**	**2.2**
Depreciation	63.9	72.0	8.1	12.6
GNP at Factor Cost	**249.5**	**261.6**	**12.1**	**4.8**
Taxes less Subsidies	-27.4	-28.4	-1.1	3.9
GNP at Market Prices	**222.2**	**233.1**	**11.0**	**4.9**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2016	2017	Change in 2017
	€ bn	€ bn	€ bn
X – M	42.4	89.3	46.9
F	-49.9	-59.8	-9.9
Net Transfers	-3.8	-4.6	-0.8
Balance on Current Account	**-11.4**	**24.9**	**36.3**
as % of GNP	-5.1	10.7	15.6

NATIONAL ACCOUNTS 2018

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2017	2018	Change in 2018		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	99.9	103.1	3.9	1.0	2.9
Public Net Current Expenditure	29.6	31.2	5.4	1.3	4.0
Gross Fixed Capital Formation	69.0	67.0	-3.0	3.6	-6.3
Exports of Goods and Services	352.6	382.5	8.5	0.9	7.5
Physical Changes in Stocks	3.5	3.0			
Final Demand	**554.6**	**587.4**	**5.9**	**1.3**	**4.6**
less:					
Imports of Goods and Services	263.3	265.8	1.0	1.7	-0.7
Statistical Discrepancy	2.8	-0.1			
GDP at Market Prices	**294.1**	**321.6**	**9.3**	**0.4**	**8.9**
Net Factor Payments	-61.0	-67.2			
GNP at Market Prices	**233.1**	**254.4**	**9.1**	**0.2**	**8.9**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2017	2018	Change in 2018	
	€ bn	€ bn	€ bn	%
Agriculture	4.2	4.3	0.1	2.5
Non-Agriculture: Wages, etc.	85.7	90.7	5.0	5.8
Other	113.3	117.0	3.7	3.3
Adjustments: Stock Appreciation	0.0	0.0		
Statistical Discrepancy	-2.8	0.1		
Net Domestic Product	**250.6**	**275.0**	**24.4**	**9.7**
Net Factor Payments	-61.0	-67.2	-6.2	10.2
National Income	**189.6**	**207.8**	**18.2**	**9.6**
Depreciation	72.0	74.8	2.8	3.9
GNP at Factor Cost	**261.6**	**282.6**	**21.0**	**8.0**
Taxes less Subsidies	-28.4	-28.2	0.2	-0.9
GNP at Market Prices	**233.1**	**254.4**	**21.3**	**9.1**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2017	2018	Change in 2018
	€ bn	€ bn	€ bn
X – M	89.3	116.7	27.4
F	-59.8	-70.9	-11.1
Net Transfers	-4.6	-5.1	-0.6
Balance on Current Account	**24.9**	**40.6**	**15.7**
as % of GNP	10.7	16.0	6.2

NATIONAL ACCOUNTS 2019

A: EXPENDITURE ON GROSS NATIONAL PRODUCT

	2018	2019	Change in 2019		
	€ bn	€ bn	Value	Price	Volume
Private Consumer Expenditure	103.8	107.5	3.5	1.0	2.5
Public Net Current Expenditure	31.2	33.1	6.1	1.5	4.5
Gross Fixed Capital Formation	67.0	75.6	12.9	2.8	9.8
Exports of Goods and Services	382.5	409.4	7.0	1.8	5.2
Physical Changes in Stocks	3.0	3.0			
Final Demand	**587.4**	**628.6**	**7.0**	**1.7**	**5.2**
less:					
Imports of Goods and Services	265.8	283.3	6.6	0.5	6.0
Statistical Discrepancy	-0.1	-0.1			
GDP at Market Prices	**321.6**	**345.2**	**7.3**	**2.7**	**4.5**
Net Factor Payments	-67.2	-70.8			
GNP at Market Prices	**254.4**	**274.4**	**7.9**	**3.0**	**4.7**

B: GROSS NATIONAL PRODUCT BY ORIGIN

	2018	2019	Change in 2019	
	€ bn	€ bn	€ bn	%
Agriculture	4.3	4.3	0.1	1.4
Non-Agriculture: Wages, etc.	90.7	95.8	5.2	5.7
Other	117.0	120.3	3.3	2.8
Adjustments: Stock Appreciation	0.0	0.0		
Statistical Discrepancy	0.1	0.1		
Net Domestic Product	**275.0**	**296.7**	**21.7**	**7.9**
Net Factor Payments	-67.2	-70.8	-3.6	5.4
National Income	**207.8**	**225.9**	**18.0**	**8.7**
Depreciation	74.8	77.5	2.7	3.6
GNP at Factor Cost	**282.6**	**303.3**	**20.7**	**7.3**
Taxes less Subsidies	-28.2	-28.9	-0.7	2.6
GNP at Market Prices	**254.4**	**274.4**	**20.0**	**7.9**

C: BALANCE OF PAYMENTS ON CURRENT ACCOUNT

	2018	2019	Change in 2019
	€ bn	€ bn	€ bn
X – M	116.7	126.1	9.4
F	-70.9	-74.8	-3.0
Net Transfers	-5.1	-5.7	-0.6
Balance on Current Account	**40.6**	**45.6**	**5.0**
as % of GNP	16.0	16.6	1.8

The Irish Economy – Forecast Overview

The Irish economy continues to perform significantly better than most OECD economies and is once again likely to register the fastest growth rate in the Euro Area in 2018. Indeed in the present *Commentary* we have revised up our forecast for GDP from 4.7 per cent to 8.9 per cent in 2018. Our forecast for 2019 has also been revised upwards to 4.5 per cent. In preparing forecasts for 2019, we assume that a European Economic Agreement (EEA) will exist between the UK and the EU after March 2019.

There are two reasons for the revision; firstly domestic consumption and modified investment have grown at a faster pace through the first half of 2018 than was previously expected. Secondly, considerable volatility in the trade balance, with imports registering negative growth over the same period has also led us to revise our forecasts. This change is mainly due to a sizeable reduction in imports of research and technology related services amongst certain multinational firms.

The most substantial risk facing the economy is the outcome of the Brexit negotiations. The summit of European Union leaders in October may provide some clarity concerning the nature of the UK withdrawal, however at this stage it is prudent to assume that a no-deal outcome is a real possibility.

This has significant implications for the forthcoming budgetary process. In a small open economy such as Ireland, at this point in the cycle, the most prudent policy would be to run budgetary surpluses and reduce the level of indebtedness. This would provide buffers to withstand future economic shocks. However, with the infrastructural deficits in areas such as housing, and the potential adverse implications of Brexit, there is a case that Budget 2019 should be a 'holding budget' and should, therefore, look to neither inflate nor delate the economy. If a no-deal Brexit were to materialise in March 2019 the economy could be confronted by a highly adverse economic shock. Either way, given the strong pace of current economic activity and the possibility of a highly adverse shock, a neutral budget is the optimal policy choice at this point. Increased international trading tensions could also have negative implications for domestic growth in 2019.

In focussing on the investment activity of domestic enterprises, the paper with the *Commentary* is of particular interest; Gargan et al. (2018), using new unique

survey data, profile the types of assets Irish SMEs are investing in and the barriers firms face to investment. Amongst the policy issues to arise from the analysis is the finding that most Irish SMEs fund a high share of investment using internal funds and that Irish firms tend to prioritise investment in fixed rather than intangible assets. Any perceived shortage of investment amongst SMEs would appear to be due to high levels of risk aversion and/or a reluctance to use external finance amongst firms rather than credit access difficulties. From a macroeconomic perspective, this would suggest that domestic SMEs would appear to be able to increase investment without hitting constraints in the near term.

The International Economy

Although the global economy continues to demonstrate strong positive growth for 2018, a number of worrying trends have emerged. Aggressive protectionist policy measures and increasingly difficult conditions among emerging markets threaten the global outlook. Furthermore, increased US interest rates have led to an exodus of capital from emerging markets. While growth in the US economy remains quite strong, Europe looks set to experience more moderate growth particularly as the ECB unwinds its accommodative monetary policy. While the IMF still expects global GDP to grow by 3.9 per cent in 2018 and 2019, their most recent report highlights the accumulation of downside risks.[1]

During Q2 2018, while the broader international outlook remained buoyant, economic activity in the European Union slowed marginally. When accounting for seasonal adjustments, annual real GDP growth fell from 2.3 per cent in the previous quarter to 2.1 per cent. The pace of private consumption growth has fallen leaving the EU reliant on trade to maintain the current growth outlook. Given the accumulation of global risk factors and exports growth declining sharply from 6 per cent growth in the second half of 2017 to 2.8 per cent in Q2 2018, it appears unlikely that the contribution from trade will be able to compensate in this manner. Annual real GDP growth rates in Q2 2018 for Germany, France, Spain and Italy fell to 1.9, 1.7, 2.7 and 1.2 per cent respectively.

As of July 2018, unemployment has fallen to 8.2 per cent for the Euro Area with rates ranging from a low of 2.3 per cent in the Czech Republic to a high of 19.5 per cent in Greece. The ECB appears set to taper the net asset purchases programme to €15 billion per month between October and December, effectively halving the monetary stimulus to the Euro Area and laying the groundwork to fully unwind the extraordinary monetary stimulus in 2019. Inflation in the Euro Area rose to 1.7 per cent in Q2 2018, while inflation in July reached 2.1 per cent. If the rate of inflation remains at or below 2 per cent over the coming months, this will enhance the likelihood of an increase in the policy rate in 2019 given the ECB's price stability target.

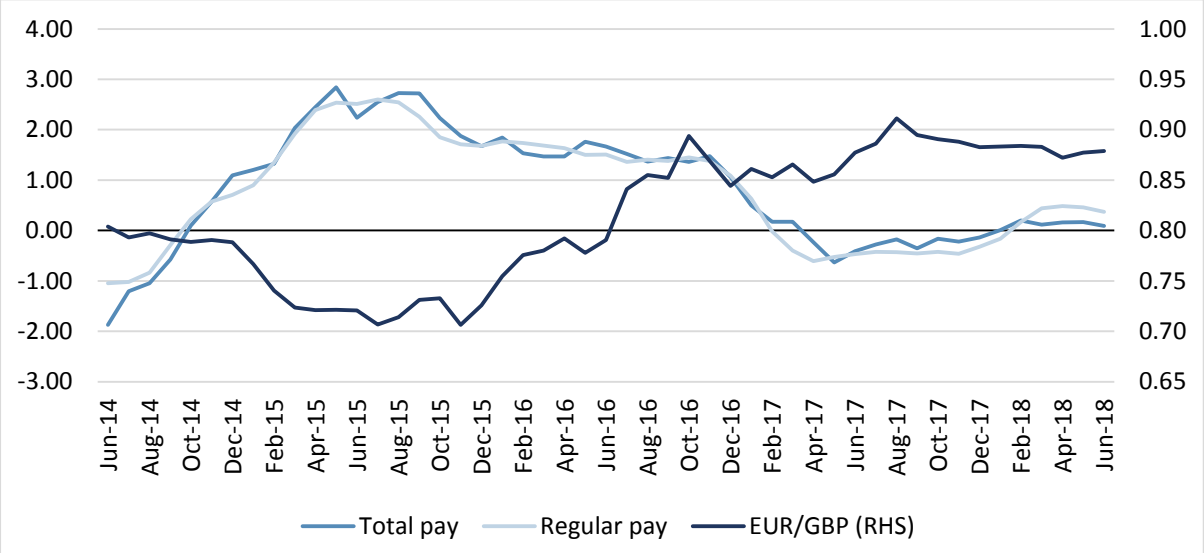
The UK economy experienced marginal growth for Q2 2018, yielding a 1.3 per cent annual increase in real GDP. However, a relatively lacklustre domestic performance, the approaching Brexit deadline, and mounting trade tensions have

[1] International Monetary Fund, 2018. 'World economic outlook: a survey by the staff of the International Monetary Fund', Washington, D.C.: International Monetary Fund, July 2018.

led to downward revisions in UK growth forecasts across leading economic institutions. As of July 2018, HM Treasury's consensus forecast produced medians of 1.3 per cent growth in 2018 followed by 1.5 per cent growth in 2019.

Since June 2016, the Pound Sterling (GBP) has lost roughly 10 per cent of its value relative to the Euro. This has increased the cost of imports and introduced significant inflationary pressure (2.5 per cent inflation in July 2018). The Bank of England introduced a further interest rate increase of 25 basis points in August 2018, given that inflation has been above target for the past six quarters. Although unemployment has fallen to 4 per cent in Q2 2018, persistently elevated rates of inflation and low productivity per worker has slowed the increase in real wages. As displayed in Figure 1, average real wages rose on an annual basis by 0.4 per cent in June 2018. Increased financial pressure in 2017 has caused UK households to overspend relative to their income for the first time since 1988, averaging £900 in excess of disposable income across the country.[2] On a national basis, this implied £25 billion worth of overspending.

FIGURE 1 GBP DEPRECIATION AND REAL WAGE GROWTH, THREE-MONTH AVERAGE (%)



Source: ONS database, UK labour market: August 2018.
Note: Total pay includes bonuses while regular pay excludes bonus payments. Average exchange rate of 0.8 between 2005 and 2018.

The recently published White Paper by the UK government, outlining its preferences regarding a relationship with the EU, has been met with a mixed reception both in the UK and Europe. Generally, the proposal seeks to secure UK borders with respect to inward migration while placing a stronger focus on securing the free trade of goods relative to services. The National Institute of

[2] ONS, 2018. 'Making ends meet: are households living beyond their means?', UK Sector Accounts Article.

Economic and Social Research (NIESR) highlighted the similarities of the desired trade agreement with terms established between the EU and Switzerland, suggesting the UK government may need to make concessions in terms of labour mobility to get such a proposal accepted by the European Parliament. In the most recent edition of *National Institute Economic Review*, Kara et al., in their paper 'Prospects for the UK economy' include the simulated effects of a soft Brexit in contrast to the White Paper proposals and a no-deal scenario.[3] The White Paper scenario results in lower output growth stemming from an immediate reduction in services exports to the EU. Compared to a hard Brexit, the implications of the White Paper proposals for GDP and inflation are less negative.

Real GDP in Japan grew by 1 per cent for Q2 2018, fuelled by improvements in domestic consumption and exports. As of June 2018, annualised inflation stood at 0.2 per cent when excluding volatile food and energy prices. Japan's trade outlook remains promising as the 'Comprehensive and Progressive Agreement for Trans-Pacific Partnership' (CPTPP)[4] has secured half of its required six ratifications. However, potential US auto tariffs of between 20 and 25 per cent, if enacted, could place a significant burden on this positive trade outlook.

US economic growth yielded an annualised real GDP growth rate of 4.2 per cent in Q2 2018. Personal consumption of goods and net exports recovered significantly (+3.8 combined percentage point contribution), following an underwhelming performance in Q1 2018. As of July 2018, the US unemployment rate declined to 3.9 per cent. The outlook for inflation is quite steady with the Federal Reserve raising the official interest rate to 2 per cent in June 2018. While US exports increased by 9.3 per cent on an annual basis for the second quarter, slow investment growth (-0.5 per cent) and previously weak export growth (+1.7 per cent averaged over the past four quarters) suggests the increase in exports may be partially due to firms attempting to sell inventories. The Chinese economy experienced annual growth of 6.7 per cent in Q2 2018. Annual Chinese inflation increased to 2.1 per cent in July, following an inflation rate of 1.9 per cent in June. Chinese exports grew in July by 12.2 per cent while imports rose by 27.3 per cent.

The following section examines the recent increase in tensions in global trading relationships.

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3 Kara, A., A., Hantzsche, J., Lennard, L., Cyrille, M., Lopresto, R., Piggott, and G., Young (2018). 'Prospects for the UK Economy', *National Institute Economic Review*, No. 245, F10-40.

4 The CPTPP was originally known as TPP, as Trans-Pacific Trade Agreement that had been signed in 2016 but never entered into force as a result of the US withdrawing. The remaining 11 nations held a formal signing ceremony for CPTPP, which no longer requires the participation of the US. To come into effect, the agreement requires ratifications from six nations, of which three have ratified the agreement thus far.

US trade tariffs

The US has imposed a number of tariffs, with the administration arguing that this will repair the nation's trade balance and lessen national security risk exposures. Having initially introduced a set of indirect tariffs in early 2018 against the rest of the world, the US administration quickly provided exemptions for 34 countries. This cohort represented the source of 55 per cent of aluminium imports into the US in 2017. For US steel imports, the exempted group represented 68 per cent of total steel imports in 2017. While Western economies to date have seen little impact as a result of these exemptions, even strong US allies including Israel have been the subject of significant tariffs. From a global perspective, the greatest implications of tariff increases centred on intensifying friction between the US and China. US imports of Chinese goods and services were worth over $500 billion in 2017, roughly one-fifth of total US imports. In the same year, the US exported $120 billion in trade to China, 8 per cent of total US exports.

Table 1 lists an abridged chronology of the deteriorating trade relationship between China and the United States thus far. Currently, this increased use of tariffs between both countries shows no sign of abating with the possibility of tariffs being applied to greater shares of the $500 billion of US imports and $120 billion of Chinese imports.

TABLE 1 THE CHINA-US TRADE WAR (2018)

Effective Date	From	To	Goods	$bn (2017)	Tariff Rate
Indirect Tariffs					
Jan 23	US	RoW	Solar Panels	8	30%
Jan 23	US	RoW	Washing Machines	2	20-50%
Mar 23	US	RoW	Steel	9	25%
Mar 23	US	RoW	Aluminium	10	10%
Direct Tariffs					
Jul 6	US	China	818 Products	34	25%
Jul 6	China	US	659 Products	34	25%
Aug 23	US	China	279 Products	16	25%
Aug 23	China	US	333 Products	16	25%
Potential Tariffs					
Sept 23	US	China	6,000 Products	200	10-25%
Sept 23	China	US	5,207 Products	60	5-10%

Source: United States International Trade Commission Dataweb (Solar Panels, Washing Machines, Aluminium); Commerce Department's Import Monitor (Steel Mill Products).

Note: US imports of solar panels includes light-emitting diodes due to data being limited to 6-digit code (HS: 854140). US imports of washing machines includes interchangeable parts, maintained at 4-digit HS code (HS: 8450).

From an Irish economic perspective in 2017, US imports of aluminium and steel from Ireland were worth $7.4 million and $5.9 million respectively. While Ireland,

to date, has benefited from tariff exemptions on these two items, the current trade war and any further escalations will adversely impact potential Irish growth in the short to medium term. Ireland's status as a small open economy means any deterioration in global trade will directly impact the Irish economy. According to previous ESRI estimates, if world GDP were to fall by 1 per cent, Ireland would likely experience a similar decline. The IMF has recently estimated that in a worst-case scenario, the current trade war could lower global GDP by 0.4 per cent in 2018 and 0.5 per cent in 2019.[5]

Emerging market turmoil: Turkey

As of August 2018, the US doubled steel and aluminium tariffs on Turkey, which exacerbated trading conditions for the already struggling Turkish economy. The combination of prolonged economic turmoil and recently increased US tariffs resulted in the Turkish Lira depreciating against the Euro by an average of 21 per cent between July and August, as seen in Figure 2A.

The underlying problem with the Turkish economy is the sizeable increase in both household and corporate debt over a sustained period of time. For example, banking sector loans increased 32.6 per cent year-on-year in August 2018. In 2017, external debt represents 53.2 per cent of GDP, with much of the debt denominated in Dollars. The nation is also experiencing high, accelerating inflation with the Consumer Price Index measuring a 15.9 per cent year-on-year increase as of July 2018. Another unsustainable element of the Turkish economy is its sizeable current account deficit, which grew by 55 per cent, year-on-year, in June. As a result of a high current account deficit and extreme weakness in the Turkish Lira, foreign currency reserves have been dwindling over the past 18 months. As of June 2018, reserves have fallen year-on-year by 16.5 per cent. Should these reserves reach critically low levels, this could ignite a further flight of capital.[6]

Given Turkey's particularly high reliance on external debt, any threat to the performance of the domestic economy could posit a large default risk to exposed lenders also. As seen in Figure 2B, roughly 70 per cent of Turkish debt is concentrated among five European nations, with Greece having reduced its share considerably since Q2 2015. Spain and Italy maintain significant shares of external

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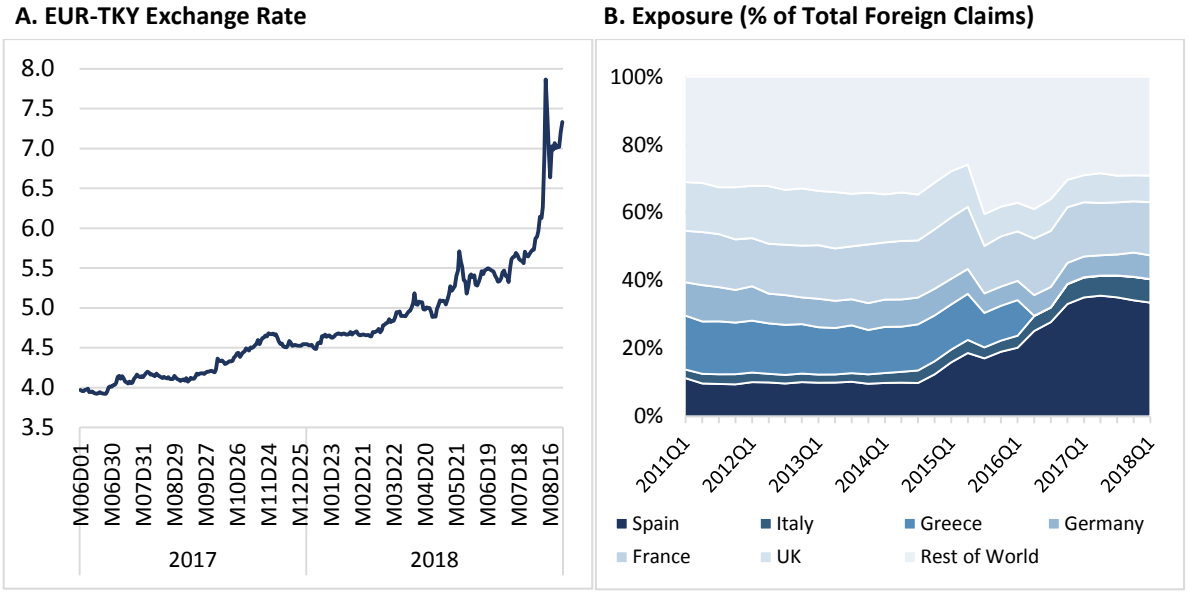
5 International Monetary Fund, 2018. 'G20 Surveillance Note: G20 Finance Ministers and Central Bank Governors' Meetings July 21-22, 2018, Buenos Aires, Argentina.

6 It should be noted that Turkey has been purchasing vast amounts of gold over the last year, likely anticipating the consequences of continued erosion of relations with Western Allies and the precarious nature of the domestic economy. This process expanded gold purchases from September 2017 onward, with annual growth rates in the stock of gold peaking at 67.5 per cent in December 2017.

Turkish debt, with claims representing 2.5 and 0.6 per cent of total assets belonging to each nation's top five banks, respectively.[7]

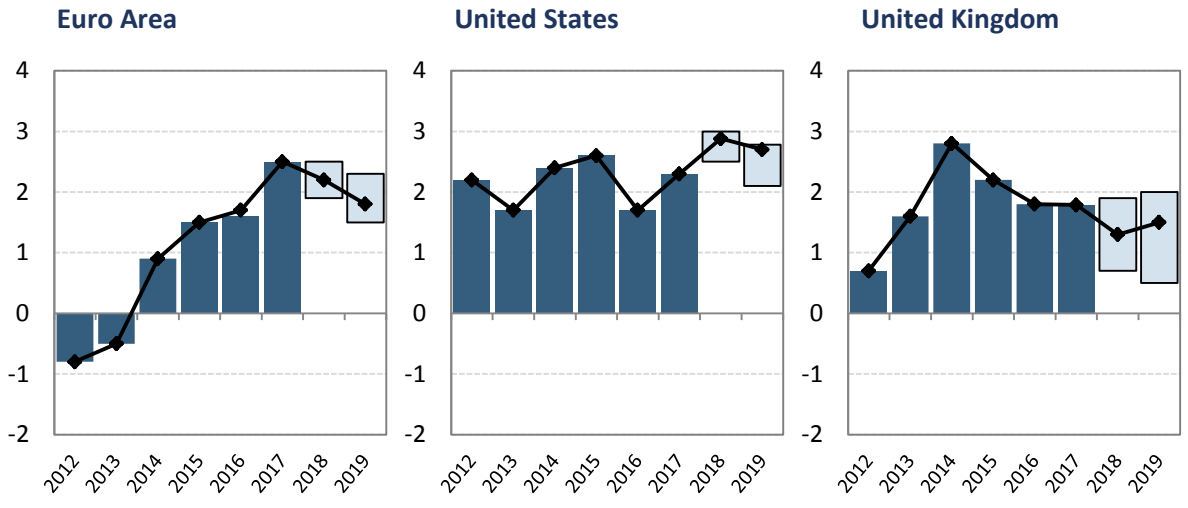
FIGURE 2 TURKISH CURRENCY CRISIS 2018



Sources: Eurostats (left) and Bank for International Settlements (right).
Note: Measured from Consolidated banking statistics (CBS_PUB) using total claims on an immediate counterparty basis.

Figure 2 summarises the forecasts for GDP growth produced by the major institutions of their respective economies.

FIGURE 2 REAL GDP GROWTH (% CHANGE, YEAR-ON-YEAR)



Sources: FocusEconomics, IMF, OECD, HM Treasury and Federal Reserve.

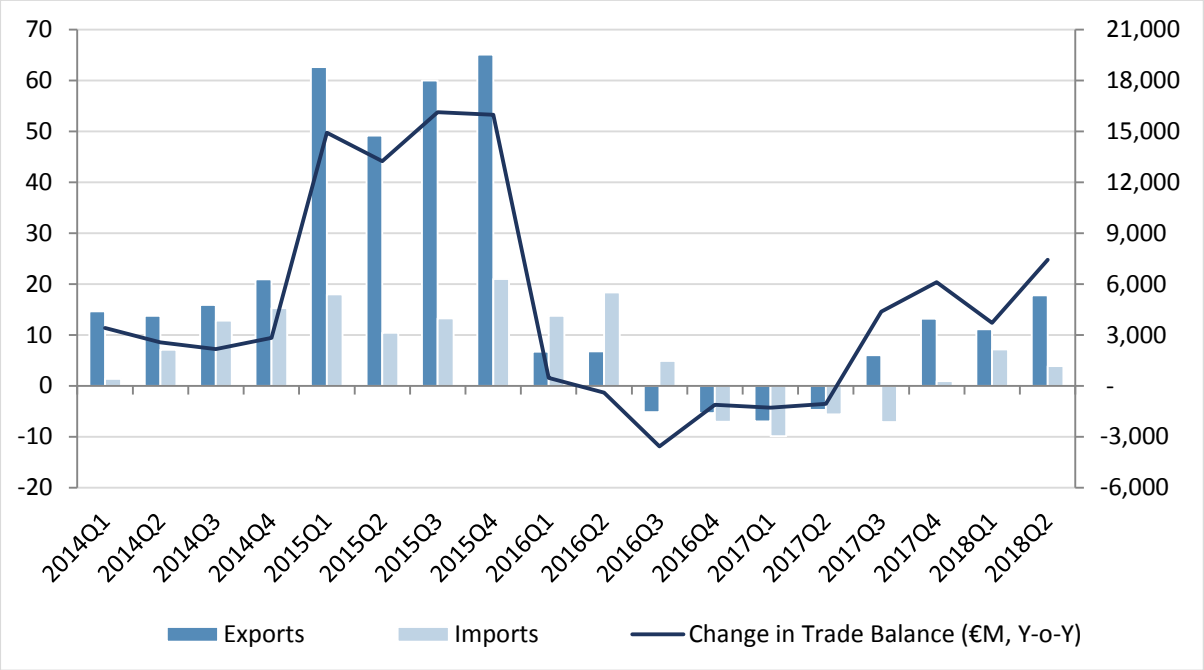
[7] Statista, Banks and Financial Services, total assets of leading banks.

IMPLICATIONS FOR IRISH EXPORTS, IMPORTS AND THE BALANCE OF PAYMENTS

Goods

The net export of Irish goods contributed €7.4 billion to the trade surplus for Q2 2018. In Figure 3, goods trade in Q2 2018 saw Irish exports grow at an annual rate of 17.8 per cent while imports increased by 3.9 per cent. Over the past four quarters, for every €1 worth of goods Ireland imported, the economy exported €2.48 worth of goods.

FIGURE 3 ANNUAL GROWTH RATE (%) IN TOTAL IRISH EXPORTS AND IMPORTS OF GOODS



Source: Central Statistics Office.

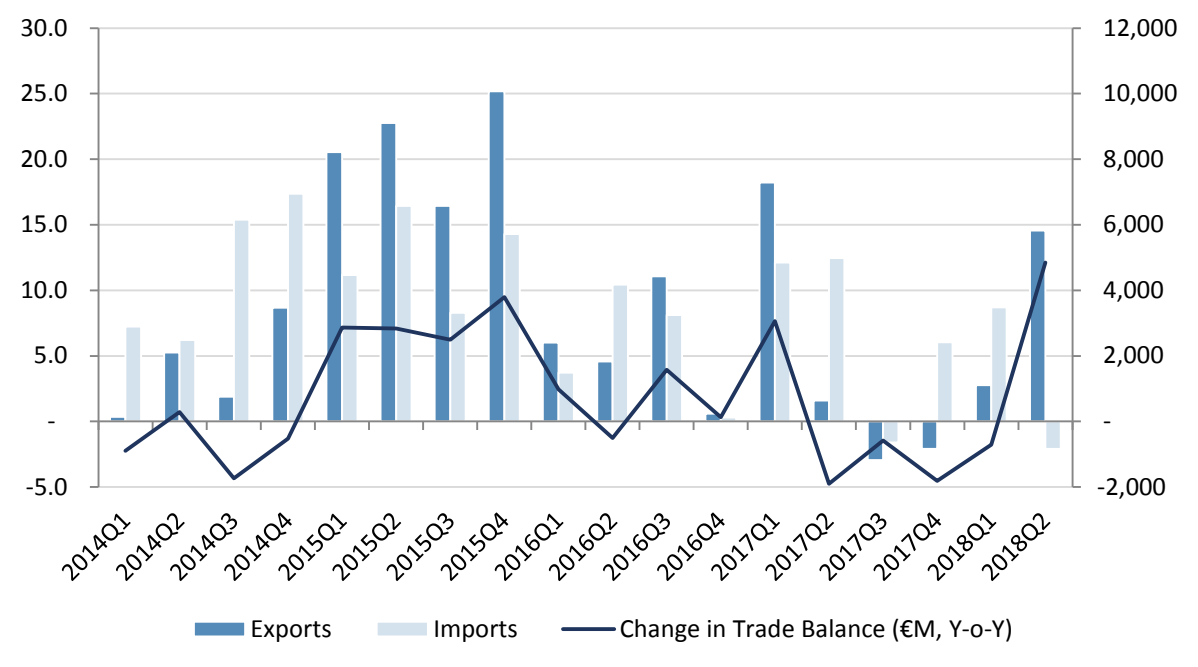
While goods are owned by Irish resident firms, some goods may never physically cross the Irish border as a form of trade. When examining Irish goods, foreign-owned Irish resident firm activities such as processing and merchanting must be taken into account.[8] For example, cross-border trade values effectively exclude the trade of ownership goods (e.g. contract manufacturing, merchanting). However, such cross-border trade values arguably provide a better understanding of domestic exporter activity.[9]

8 'Goods for processing' is dominated by 'Contract Manufacturing', a process in which multinational companies residing in Ireland issue contracts to foreign firms to produce goods. Although these goods never enter the Irish economy, due to ownership of these goods pertaining to Irish resident firms, sales are recorded as an Irish export. 'Merchanting' consists of the buying and selling of completed goods abroad which at no stage enter or leave Ireland.

9 For further details on ownership trade, see CSO's 'Explaining Goods Exports and Imports 2012-2016'.

The recent growth of cross-border imports has exceeded that of exports, resulting in a persistently decreasing trade balance on a cross-border basis. However, in Q2 2018 a combined annual increase of 14 per cent in exports and a 2 per cent decrease of imports led to an unprecedented €4.8 billion contribution to the trade balance for goods. This marks the largest contribution since 2009. Figure 4 highlights how persistently higher growth rates in goods imports caused a consistent year-on-year decline in the trade surplus since Q2 2017. However, for the most recent quarter (Q2 2018), a significant surplus was experienced.

FIGURE 4 ANNUAL GROWTH RATE (%) IN CROSS-BORDER IRISH EXPORTS AND IMPORTS



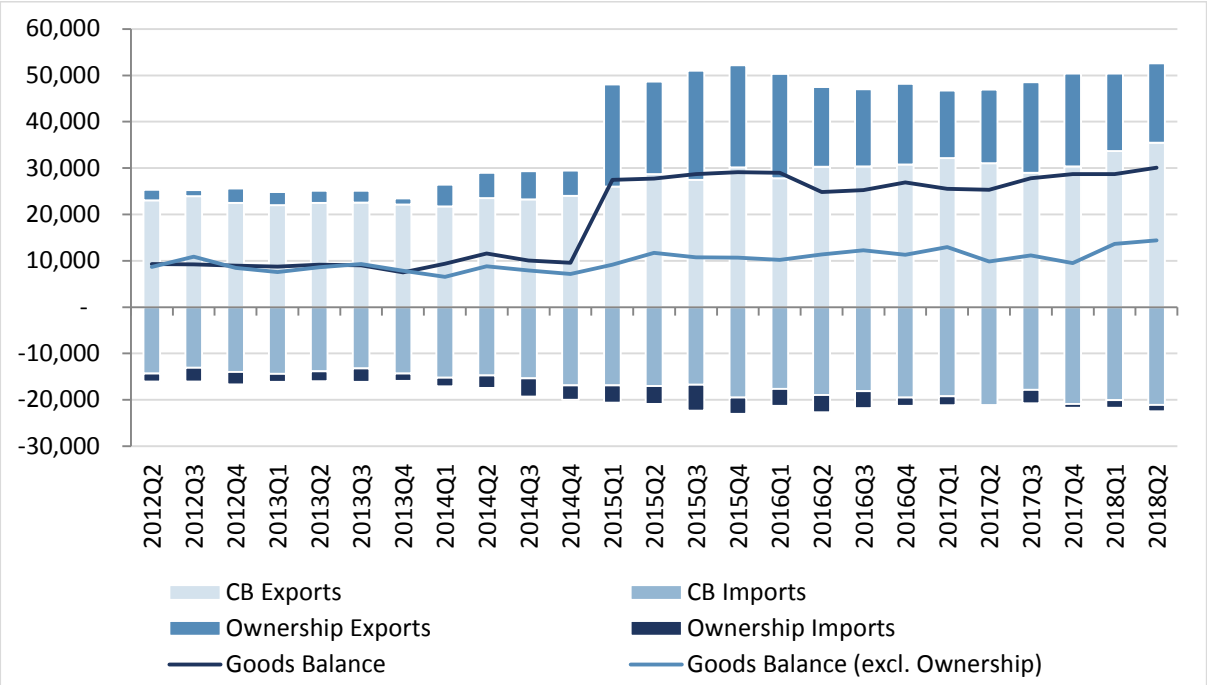
Source: Central Statistics Office.

In the most recent publication of the Balance of International Payments, the Central Statistics Office (CSO) released quarterly measurements of goods for processing and merchanting in Ireland between 2016 and early 2018. Prior to this release, the QEC normally estimated the sum of goods for processing and merchanting which we refer to as ownership trade. These new values reveal goods for processing (often referred to as 'contract manufacturing') have dominated goods exports since 2016, accounting for 90 per cent of total ownership exports and a third of total goods exports.

Merging estimates between 2012 and 2015 with CSO values for 2016 onwards allows value of ownership trade to be identified. Figure 5 highlights how a sudden growth of this ownership trade inflated total goods exports. This increase led to total exports being 58 per cent greater than cross-border exports between 2015 and early 2018. Prior to 2015, total exports were, on average, only 14 per cent

greater than cross-border exports. Goods for processing (mostly contract manufacturing) are one of the main reasons for the increase in export values in recent years. As a result, the goods balance of trade effectively doubles when ownership trade is taken into account.

FIGURE 5 CROSS-BORDER AND OWNERSHIP TRADE OF GOODS (€ MILLION)



Source: Central Statistics Office, QEC calculations.
Note: Ownership trade includes, but is not limited to, forms of goods for processing such as contract manufacturing, and merchanting, the purchase and resale of goods which do not enter the merchant's economy.

The 14 per cent annual increase in cross-border exports stems largely from 'Chemicals and related products', which grew by 22 per cent between the second quarters of 2017 and 2018. Within this category, medicinal and pharmaceutical exports appear to be the main determinant of growth, having grown by 50 per cent between Q4 2017 and Q2 2018. Chemical products, including medicinal and pharmaceutical products, now represent 62 per cent of total cross-border exports. Cross-border imports declined by 2 per cent in Q2 2018 relative to the same period last year. 'Machinery and transport equipment' and 'Chemicals and related products' represented 39 and 25 per cent of total imports, respectively. Machinery imports fell by 6.6 per cent and Chemicals by 0.3 per cent for the same period.

Table 2 compares exports and imports between regions for the first half of the year. The overall trade balance with the UK fell (-€0.7 billion) as exports of Chemicals and related products saw a 20 per cent fall compared to the same period last year. Excluding the UK, the EU trade surplus increased by 10 per cent (+€1.0 billion), due to a significant increase in chemical exports. Overall trade

with the US saw the greatest improvement compared to the first half of 2017, with the trade surplus between Ireland and the US increasing by 42.8 per cent (+3.8 billion). This was largely due to a 25 per cent reduction in US goods imports.

TABLE 2 JANUARY-JUNE ANNUAL CHANGE (%) IN GOODS EXPORTS AND IMPORTS

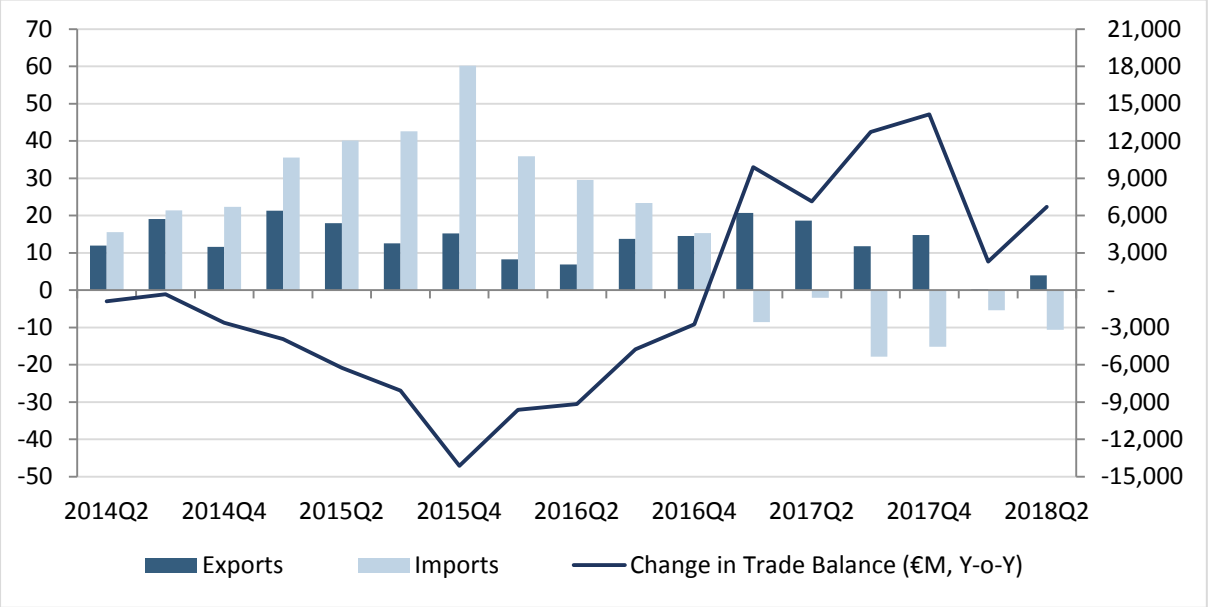
	Exports	Imports
Total – UK	**-7**	**3**
Food and live animals	4	6
Chemicals and related products	-20	-20
Machinery and transport equipment	-12	8
Miscellaneous manufactured articles	2	2
Total – Rest of EU	**13**	**14**
Food and live animals	5	5
Chemicals and related products	23	84
Machinery and transport equipment	-14	-11
Miscellaneous manufactured articles	3	-1
Total – US	**9**	**-25**
Food and live animals	-48	18
Chemicals and related products	29	-45
Machinery and transport equipment	-47	-16
Miscellaneous manufactured articles	0	-1

Source: Central Statistics Office.

Services

Given that two-thirds of total Irish imports are based on the purchase of foreign services, even marginal declines in service growth can have a significantly positive effect on the trade surplus, as reflected in the trade balance for 2017. Following contractions in R&D-related activities throughout 2017, in Q1 2018 services appear to be returning to normal levels. Exports grew by 1.1 per cent while imports declined by 5.4 per cent, relative to the same period last year.

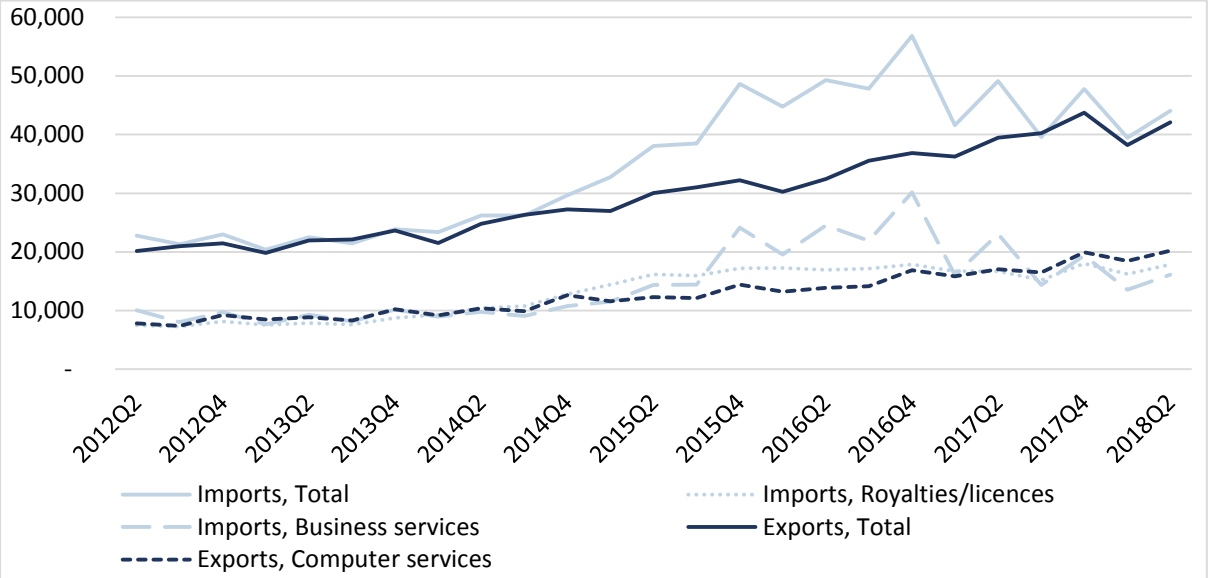
FIGURE 6 ANNUAL GROWTH RATE (%) IN IRISH SERVICE EXPORTS AND IMPORTS



Source: Central Statistics Office.

Exports of computer services maintain impressive growth in Q1 2018, rising by 16.6 per cent relative to the same period last year. Significant and consecutive declines in business services since Q2 2017 have moderated overall growth rates in service exports. Royalties & licenses and business services formed 75 per cent of services imports in Q1 2018. Successive year-on-year reductions in both items have contributed to five consecutive quarters of import declines, as reflected in Figure 6. Imports of research and development services experienced the largest annual decrease, falling by 42 per cent in Q1 2018.

FIGURE 7 EXPORTS AND IMPORTS OF SERVICES (€ MILLION)

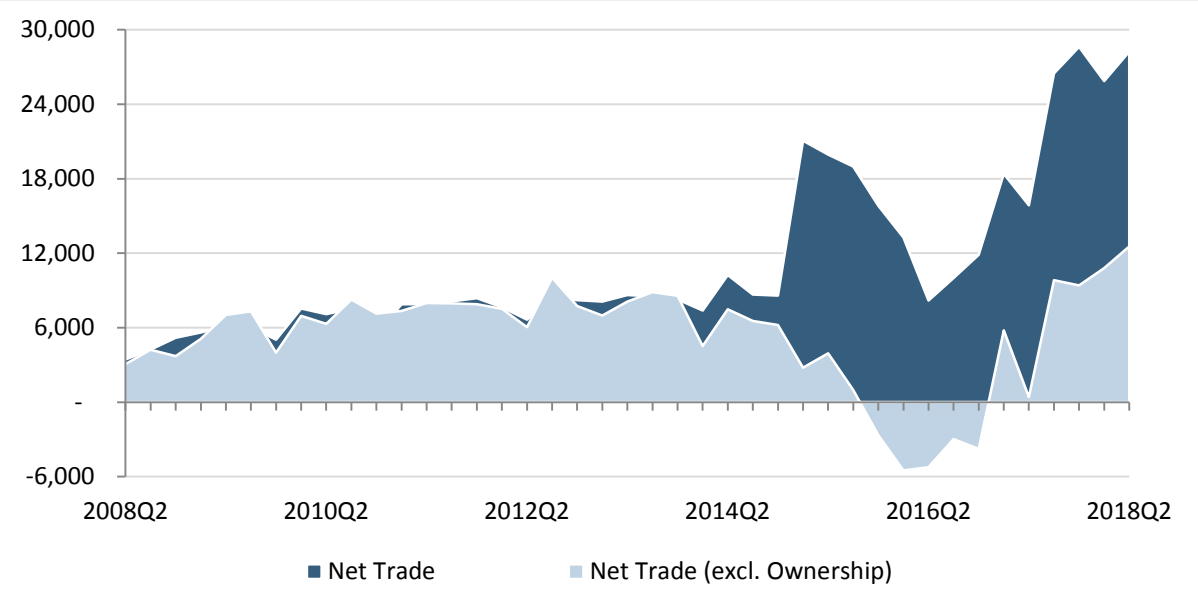


Source: Central Statistics Office.

Trade Balance

For Q2 2018, total exports increased at an annual rate of 9.7 per cent to €95 billion while imports fell by 5.7 per cent to €66 billion. This resulted in a significant contribution to the Irish trade surplus. As previously noted, adjusting for the inclusion of ownership trade produces noteworthy differences in the overall trade balance. Figure 8 highlights these differences, facilitating the assessment of domestic trade activity and Ireland's international competitiveness over the past ten years. Most notably, due to the inclusion of ownership trade, a domestic trade deficit in 2016 (-6.4 per cent of GDP) was transformed into a major trade surplus (15.9 per cent of GDP).

FIGURE 8 CROSS-BORDER AND ADJUSTED NET EXPORTS OF GOODS AND SERVICES (€ MILLION)



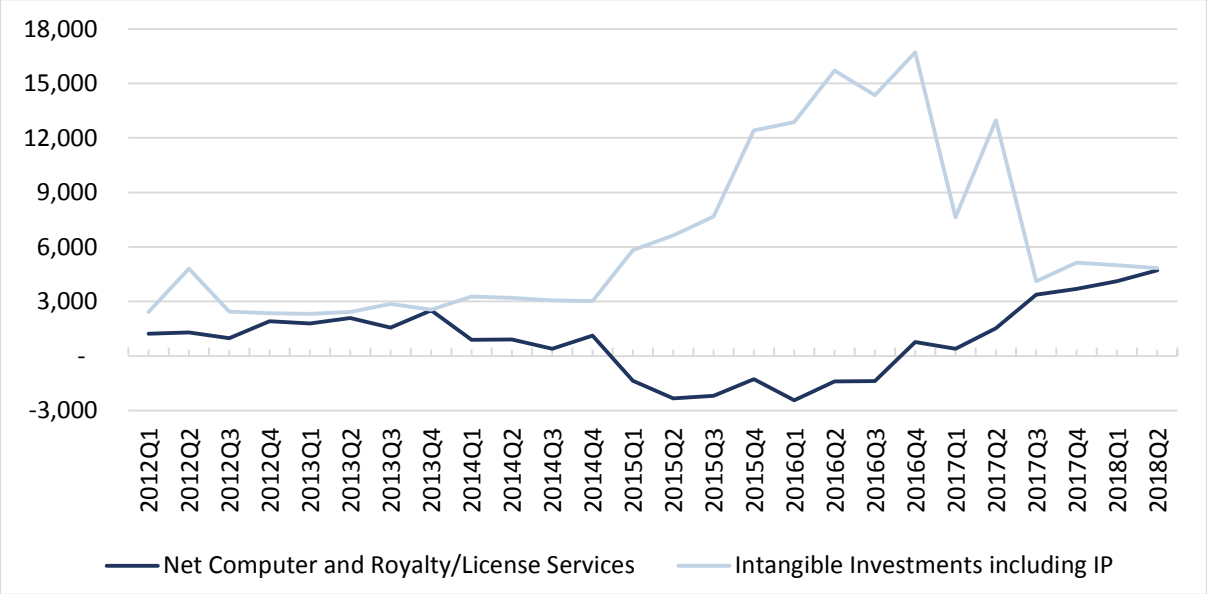
Source: Central Statistics Office, QEC calculations.
Note: Adjustment to net trade accounts for ownership trade of goods. This includes, but is not limited to, forms of goods for processing such as contract manufacturing, and merchanting, i.e. purchase and resale of goods which do not enter the merchant's economy.

Another reason for the volatility evident in the domestic trade balance is due to changing trading patterns amongst service providers located in the Irish economy. In recent years, Ireland has been a net importer of computer and license services. This involved sales activities occurring domestically using intellectual properties from abroad. However, now that much of this activity has been relocated to the Irish economy, Ireland now acts as a net exporter with respect to computer service/license payments. The changing trends may be observed in Figure 9.

Due to the volatile nature of ownership trade in goods as well as services, forecasts in the *Commentary* continue to be based on trends in trade patterns linked to underlying Irish economic activity. QEC forecasts of exports have been

adjusted to 7.5 per cent and 5.2 growth in 2018 and 2019, respectively. For these same years, imports are expected to fall marginally by 0.7 per cent in 2018, increasing by 6.0 per cent in the following year.

FIGURE 9 NET COMPUTER AND ROYALTY/LICENSE SERVICES AND INTANGIBLE INVESTMENT (€ MILLION)

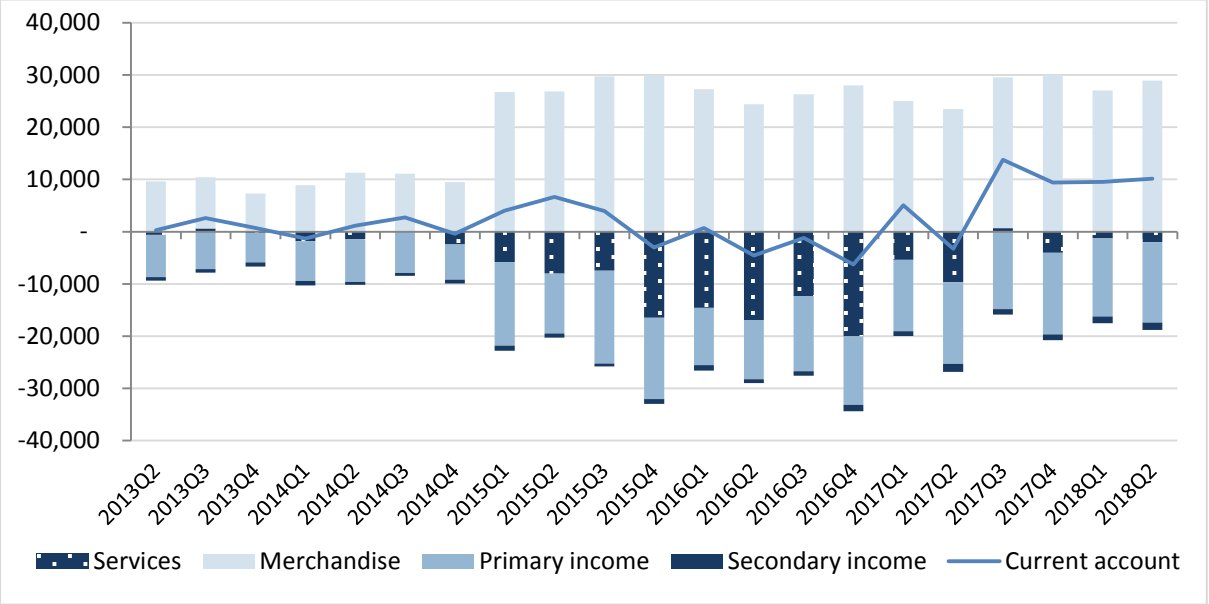


Source: Central Statistics Office.

Current Account

The current account balance combines trade balances with international net income flows. In Ireland's case, outflows of income generally moderate the major trade surpluses arising from positive net exports. Figure 10 decomposes the current account into goods, services, primary and secondary income. Changes relative to the previous quarter offset the increase in the net trade surplus of goods, leading to a relatively stable current account balance in Q2 2018.

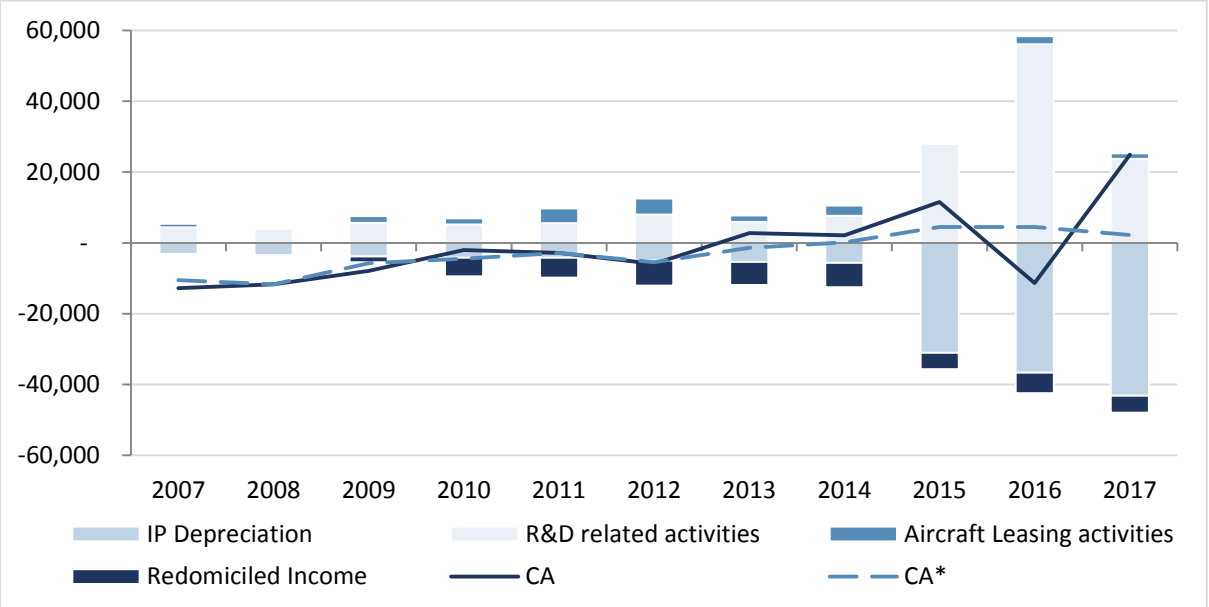
FIGURE 10 CURRENT ACCOUNT BALANCE, QUARTERLY (€ MILLION)



Source: Central Statistics Office.

From an annual perspective, the current account has been rather volatile in recent years. Significant increases in R&D related activities contributed towards this volatility, motivating the calculation of a modified current account (CA*). In Figure 11, the various excluded components are identified, allowing for the calculation of the CA*. Vast amounts of IP depreciation and R&D activity explain the majority of the divergence between these two measures of the current account. As a percentage of modified gross national income (GNI*), the CA* fell from 2.6 per cent to 1.2 per cent between 2016 and 2017.

FIGURE 11 MODIFIED CURRENT ACCOUNT BALANCE, ANNUAL (€ MILLION)



Source: Central Statistics Office.

The Domestic Economy

OUTPUT

The domestic section of the *Commentary* is organised as follows; we initially review the outlook for output growth before discussing developments in the Irish monetary and financial sectors. Prices and earnings in the economy are then discussed, followed by a review of demand-side factors such as consumption and housing market issues. On the supply side, we then examine developments in investment and the labour market before concluding with an analysis of the public finances.

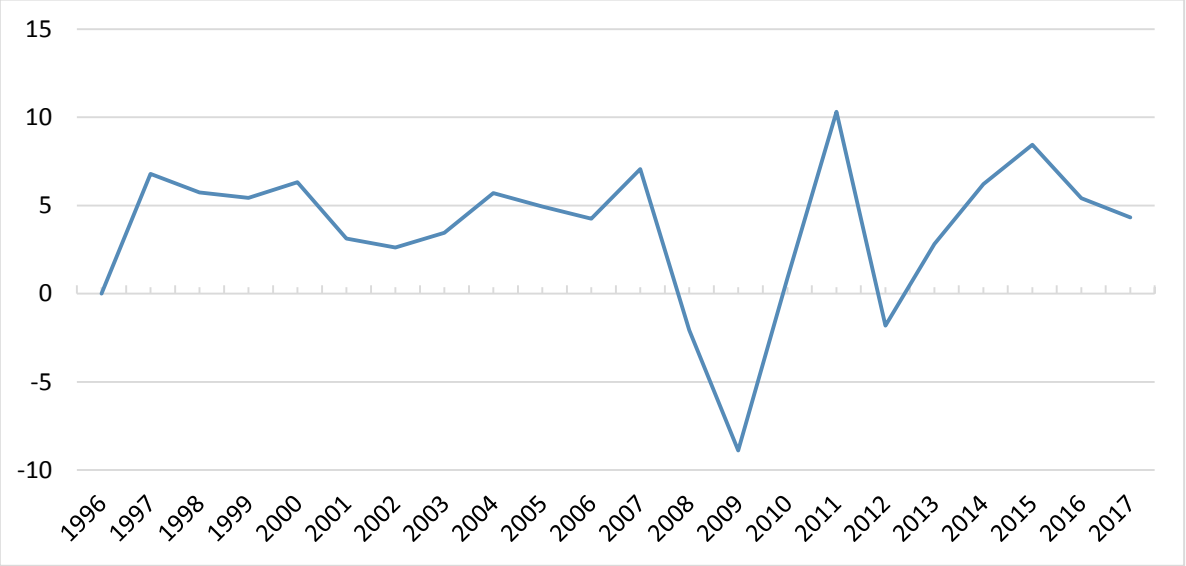
The headline rate of output growth in the domestic economy has been revised upwards in the present *Commentary* due to two factors. First, domestic economic factors have strengthened through the first half of 2018 with both consumption and modified investment increasing at a faster rate than previously expected.

More importantly, the second reason for the higher forecast is the revision of our forecast for imports in 2018. As noted in the International Section, the most recent data indicate a reduction in imports of research and technology related services from the MNE sector. This has led to substantial declines in the overall level of imports and a sizeable improvement in the trade balance. Consequently, our forecast for GDP has increased significantly.

Recent data breaking down the gross value added (GVA) for 'Foreign-owned Multinational Enterprises' and 'Other Sectors'[10] provide more insight into the underlying rate of domestic activity outside of the multinational sector. Figure 12 plots the year-on-year growth in GVA for the Other Sectors category over the period 1996 to 2017. The recovery in this sector appears to have peaked in 2015 at over 8 per cent, with growth rates of 5.4 and 4.3 per cent in 2016 and 2017 respectively.

[10] The 'Other Sectors' category are those sectors of the Irish economy which are not dominated by multinational enterprises.

FIGURE 12 YEAR-ON-YEAR GROWTH RATES (%) IN GVA FOR 'OTHER SECTORS'



Source: Central Statistics Office.

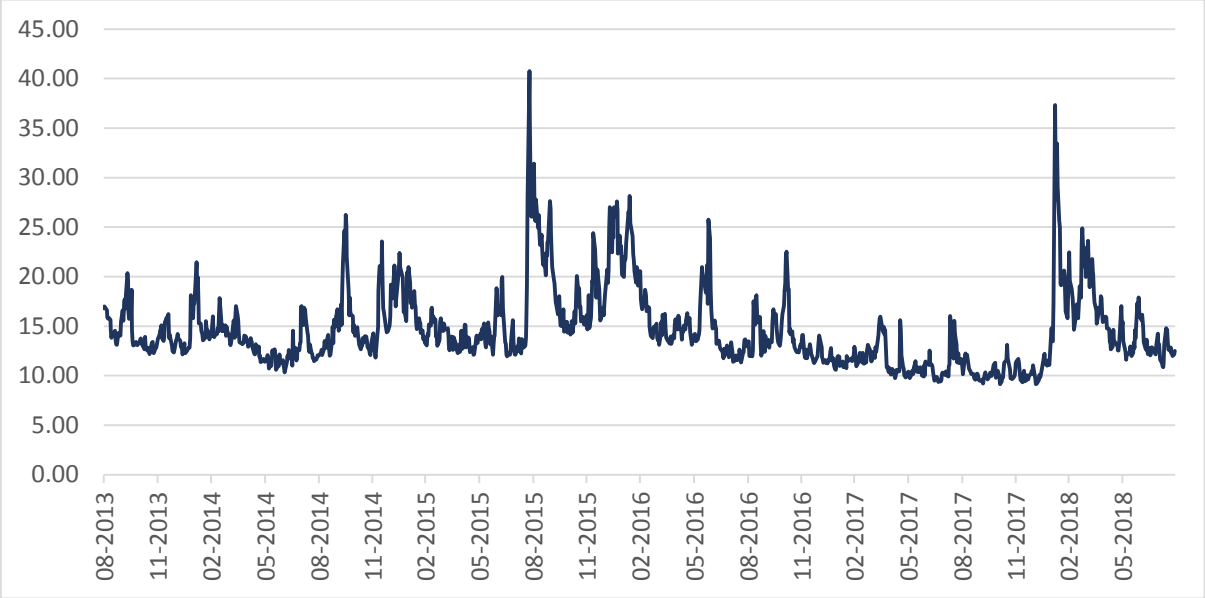
MONETARY AND FINANCIAL CONDITIONS

International monetary environment

Despite considerable tensions around international trade arrangements and the ongoing Brexit negotiations, international financial markets have experienced a relative calm through the second and third quarters of 2018. This relative tranquillity follows a period of heightened volatility towards the beginning of 2018. Figure 13 outlines the CBOE VIX index,[11] the market standard measure of volatility. For Q2 2018 and into Q3, the index has declined pointing towards a more stable financial market environment. The continued accommodative monetary policy stance in Europe and Japan as well as the well telegraphed nature of US policy rate increases are potentially contributing factors to this decline.

[11] The VIX Index is a calculation designed to produce a measure of constant, 30-day expected volatility of the US stock market, derived from real-time, mid-quote prices of S&P 500® Index (SPXSM) call and put options. On a global basis, it is one of the most recognised measures of volatility, widely reported by financial media and closely followed by a variety of market participants as a daily market indicator.

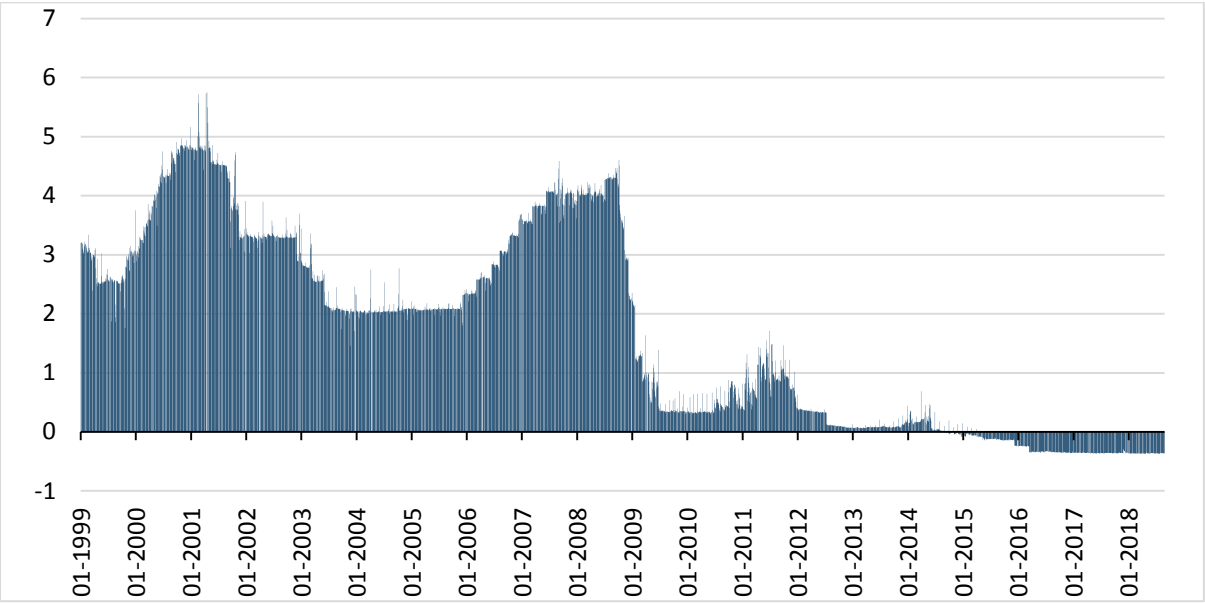
FIGURE 13 VIX VOLATILITY INDEX (%)



Source: St Louis Fed Database, from Chicago Board Options Exchange.

From a European perspective, the ongoing ECB negative policy rate position is one of the main catalysts for ensuring financial and money market stability in the face of an increasingly uncertain global economic environment. The Eonia rate (Figure 14) remains anchored at -0.4 per cent in line with the stated ECB policy of maintaining a negative overnight rate.

FIGURE 14 EURO OVERNIGHT INDEX AVERAGE, EONIA (%)

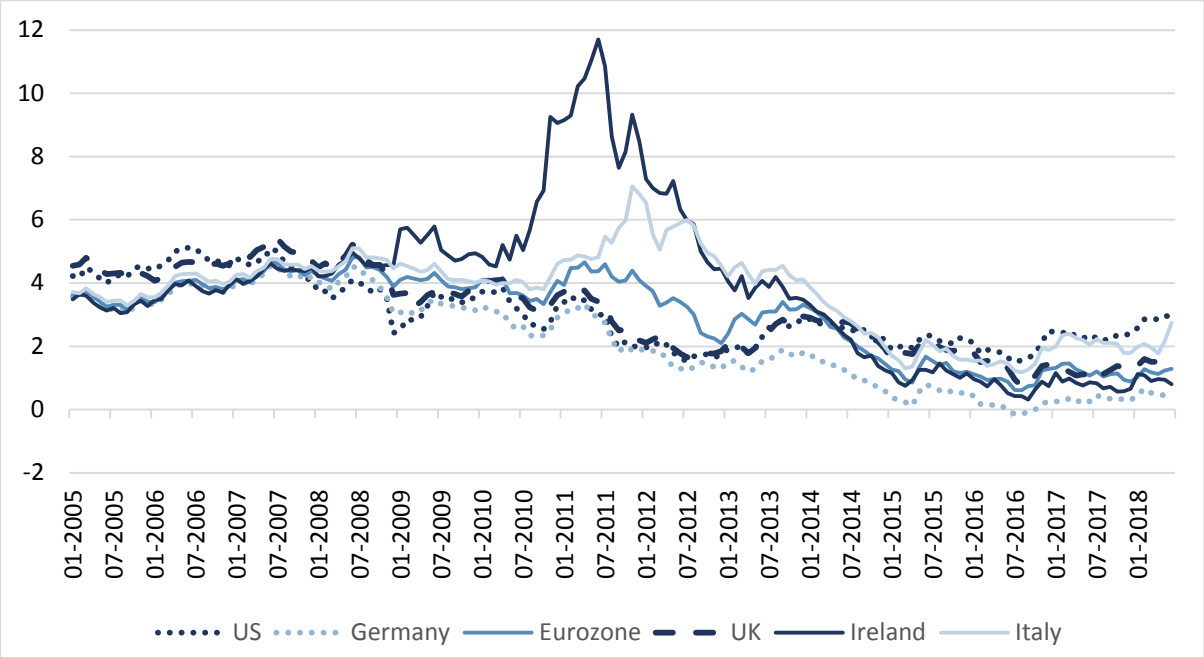


Source: European Central Bank, Statistical Data Warehouse.

This accommodative monetary policy stance, coupled with the implementation of the public sector asset purchase programme from the ECB, has led to a stabilisation and fall in the cost of financing for Eurozone governments. Figure 15 presents the ten-year government bond yields for a selected group of economies. As of June 2018, Irish ten-year bond yields stood at 0.8 per cent below the Eurozone average. Importantly, despite a peak in the first months of this year, the cost of borrowing has begun to trend downwards in Quarter 2. This is in contrast to financing costs for other economies such as Italy where political tensions have led to uncertainty around debt sustainability. The decoupling of Ireland from other peripheral economies is a particular success and points towards increasing market confidence in Ireland's economic and financial prospects.

However, Ireland remains highly indebted both from a public and a private sector perspective. As noted in the previous *Commentary*, the expected unwinding of the ECB's extraordinary measures as well as the gradual normalisation of the policy rate pose considerable risks to such a leveraged economy. Locking in long-term government funding at current low rates would be advisable and prudent as well as continued efforts to reduce the debt burden.

FIGURE 15 TEN-YEAR GOVERNMENT BOND YIELD (%)



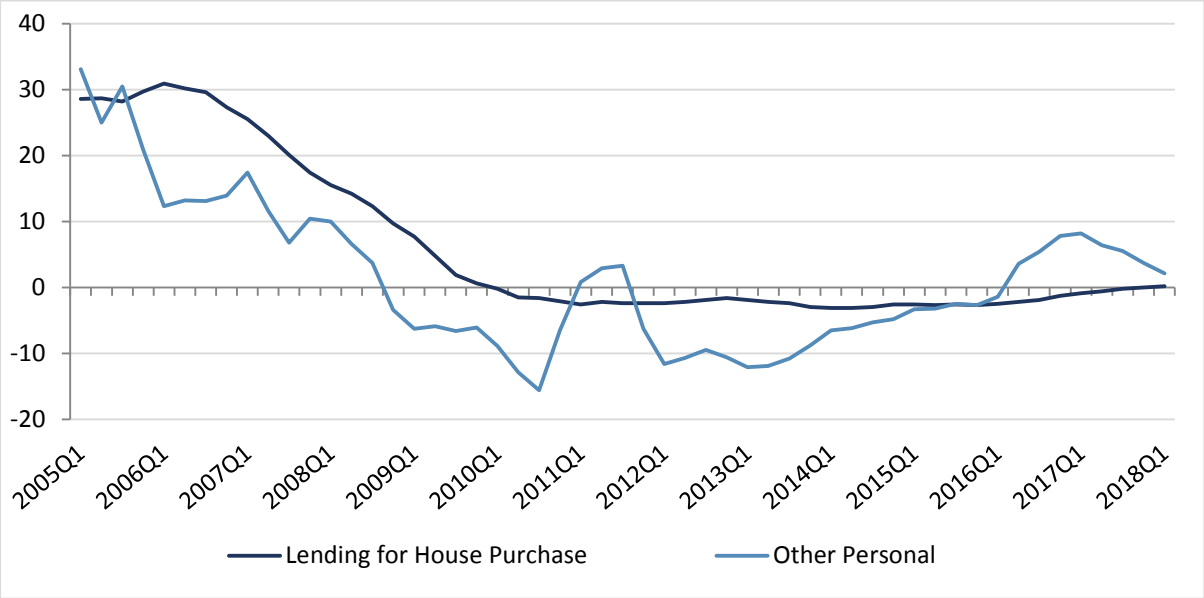
Source: St. Louis Fed. database.

Household credit and mortgage market

For the Irish mortgage market, Q1 2018 represents an important turning point in a return to normalisation of lending practices. For the first time since 2009, the stock of outstanding mortgage lending has grown as new lending outstrips

repayments. Figure 16 presents the growth rates of credit to households from Irish resident credit institutions. The data are split by loans for house purchase and other personal loans (auto finance, credit cards, student loans etc.). On an annualised basis, outstanding mortgage lending grew by 0.2 per cent to Q1 2018. Non-mortgage credit also continued to expand in Q1 2018 at an annualised rate of 2.1 per cent.

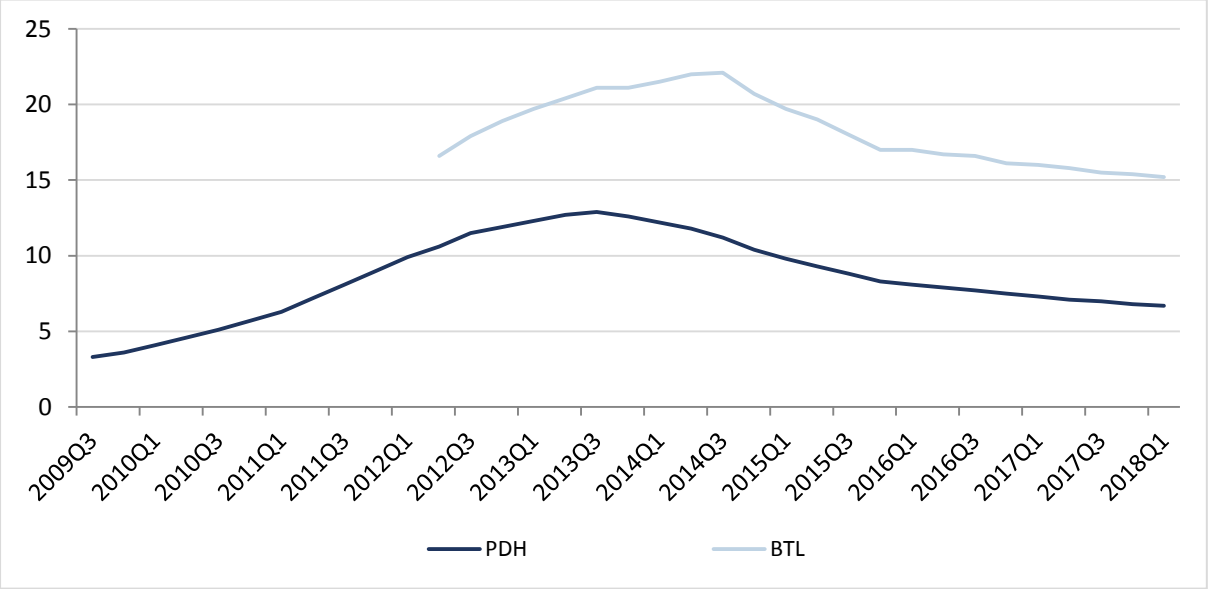
FIGURE 16 GROWTH RATES OF CREDIT TO HOUSEHOLDS (%)



Source: Central Bank of Ireland, Credit, Money and Banking Statistics.
Notes: Data are taken from Central Bank of Ireland data release A.18, Growth rates series codes 777 and 1,252.

As the decline in the level of credit to households appears to have bottomed out, the share of mortgages in arrears also continues to fall. The improvement in the labour market as well as increasing house prices are both factors in determining a lower arrears rate. Policy actions in the banking sector in terms of achieving sustainable arrangements for borrowers are also contributing to the decline. As of Q1 2018, the share of loans in arrears stood at 6.7 per cent, down marginally on the previous quarter and down from 7.3 per cent year-on-year. This constitutes a total of 10.2 per cent of the balance of outstanding PDH mortgages. The default rate on buy-to-let (BTL) loans has also reduced but remains at 15.2 per cent of accounts.

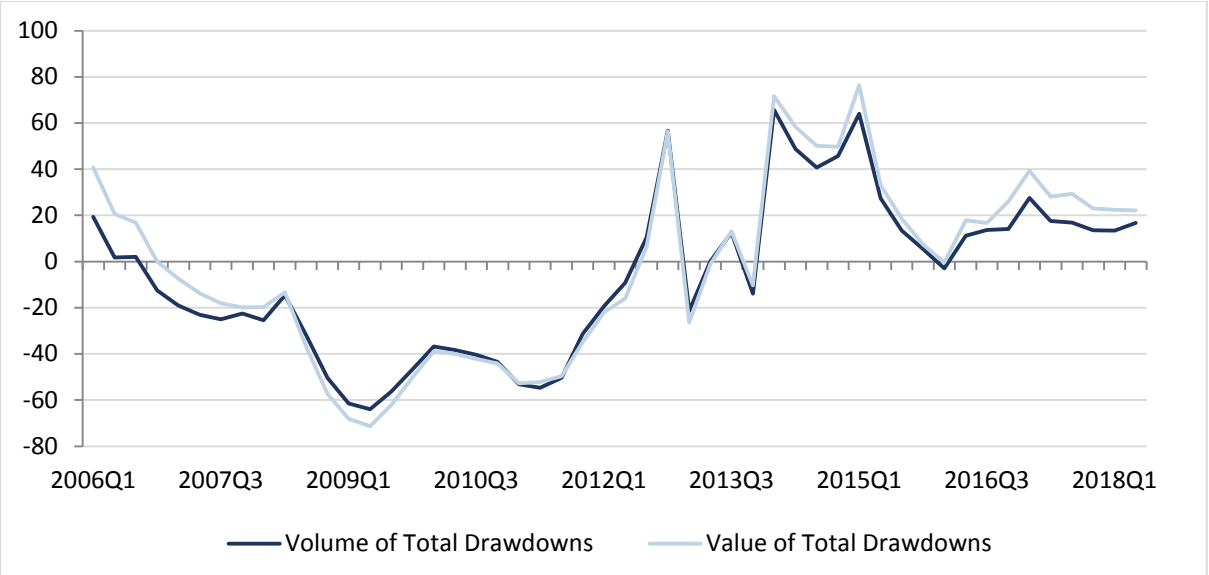
FIGURE 17 IRISH HOUSEHOLD MORTGAGE ACCOUNTS IN ARREARS BY TYPE OF LOAN (%)



Source: Central Bank of Ireland, Mortgage Arrears Statistics.
Notes: PDH refers to principal dwelling houses loans while BTL are buy-to-let loans. Loans are defined in arrears if they are greater than 90 days past due on their payments.

In terms of new mortgage lending, in Q2 2018 the volume of new mortgage drawdowns increased by 16.5 per cent year-on-year, and the value of mortgages increased by 22.2 per cent year-on-year. This represents an acceleration in the rate of growth of the volume of loans. Over the past 12 months, the relatively higher growth rate in the value relative to the volume of loans reflects the fact that borrowers are drawing down larger and larger loans in an increased house price environment (albeit the most recent data indicated a marginally lower mortgage size in Q2 2018 than Q1 2018).

FIGURE 18 YEAR-ON-YEAR GROWTH RATE OF NEW MORTGAGE DRAWDOWNS (%)

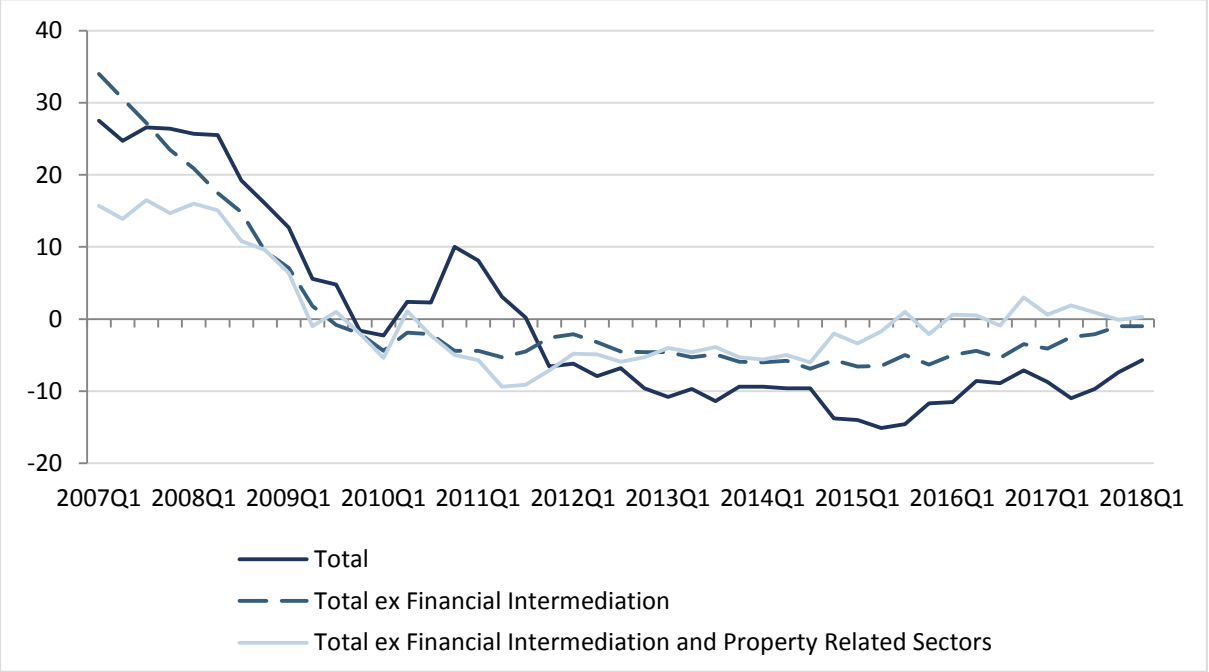


Source: Banking and Payments Federation Ireland.

Trends in SME and corporate credit market

Turning to the provision of credit to Non-Financial Corporations, in Q1 2018 the overall stock of credit continues to decline, down by 5.7 per cent year-on-year. However, much of the decline is concentrated in the financial intermediation and property sectors which continue to have a debt overhang from the crisis period. Credit to enterprises not in property or financial services grew in Q1 2018 by 0.3 per cent year-on-year. The growth for these sectors, coupled with the growth in the stock of mortgage credit, points towards the ongoing normalisation of the domestic credit market, ten years after the economic crisis began.

FIGURE 19 GROWTH RATES OF CREDIT TO PRIVATE SECTOR ENTERPRISES (%)



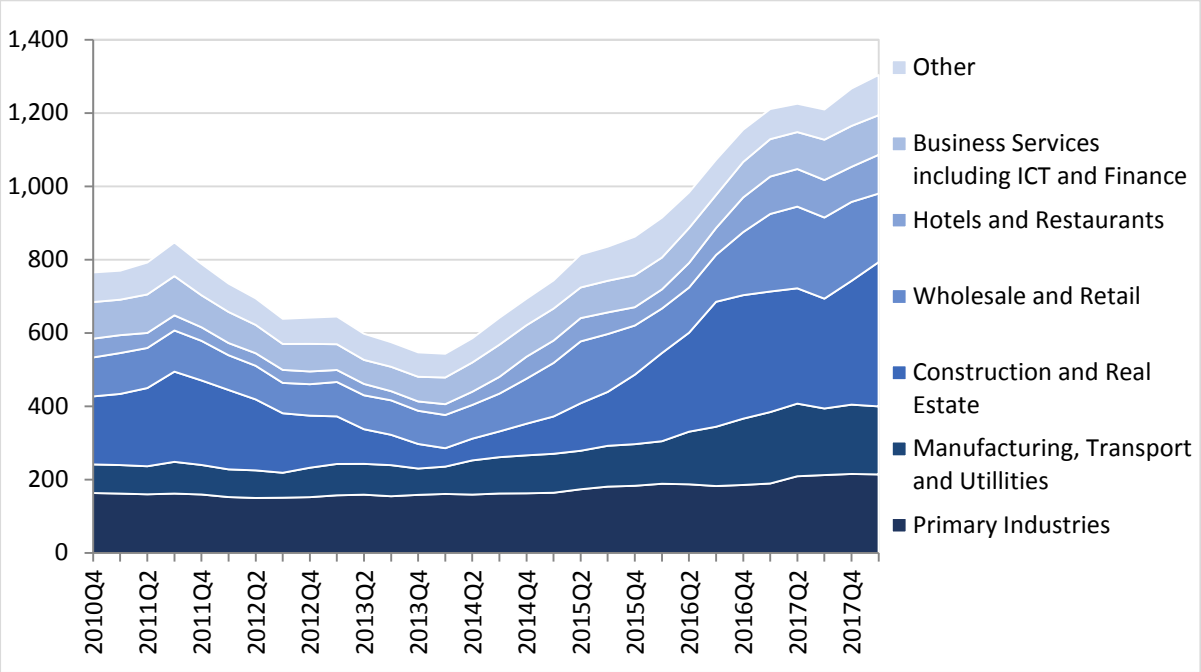
Source: Central Bank of Ireland, Credit, Money and Banking Statistics.
Notes: Data are taken from Central Bank of Ireland data release A.14, Growth rates series codes 17, 17.1 and 17.2.

While the overall stock of credit to enterprises in Ireland provides some insight into the financing conditions for companies, the presence of multinationals and some large Irish companies makes it difficult to evaluate the borrowing behaviour of Irish businesses. A focus on SME credit therefore is warranted to understand the financing environment for domestic enterprises. The previous *Commentary* noted that total annual gross new lending to SMEs has grown steadily since 2013 and, for 2017, total new lending amounted to just over €5 billion, up from €4.5 billion in 2016, representing a 10 per cent increase year-on-year.

The data for Q1 2018 indicate a continuation in the trend of higher levels of credit for SMEs. Figure 20 outlines the four-quarter rolling average of new lending to SMEs with an increase in lending evident. Of particular note is the significant

increase in credit to construction and real estate firms as well as to the hotels and restaurants sector. These sectors posted year-on-year growth to Q1 2018 of 77 and 48 per cent respectively. As these sectors are highly reliant on the domestic economy, their increased credit usage is reflective of the current strong performance of the domestically non-traded sectors. Given the non-traded nature of these enterprises, an overreliance on these sectors can lead to a loss of competitiveness emerging over the medium term.

FIGURE 20 QUARTERLY NEW LENDING TO IRISH SMES BY SECTOR (FOUR-QUARTER ROLLING AVERAGE)

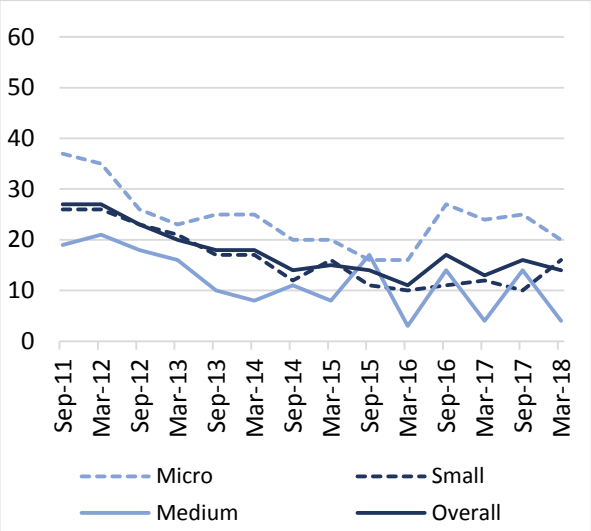


Source: Central Bank of Ireland, SME Credit Series, Table A.14.1.

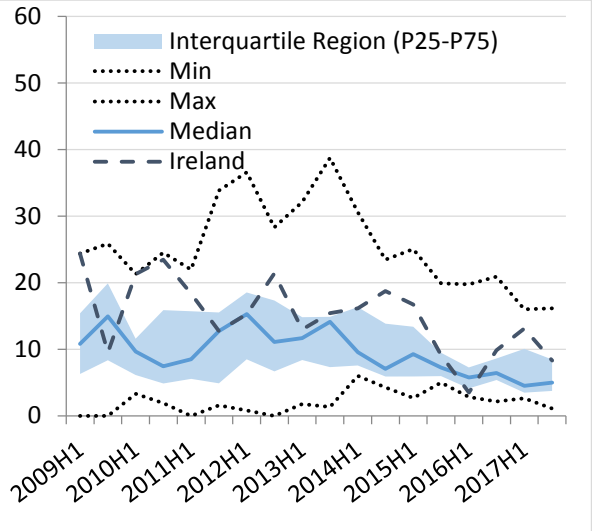
While the level of new lending has grown year-on-year, survey data on rejection rates for bank finance across SMEs point to diverging trends across firms in the ease of credit access. Figure 21 presents the average rejection rate for SMEs seeking finance separately for micro, small and medium-sized firms. Overall credit supply appears relatively stable over the past number of quarters. However, in the most recent survey notable increases in the rejection rates for small firms appear to have offset declines in the rejection rate for micro firms. It must be noted that Ireland still has a higher rejection rate than the median rate in other Eurozone economies. The special article with this *Commentary* looks at the financing activity of Irish SMEs in more detail. Gargan et al. (2018) find a high share of internal funds on enterprise balance sheets which suggests that firms would have internal capacity to expand their operations regardless of credit market access.

FIGURE 21 AVERAGE REJECTION RATE FOR SMES SEEKING FINANCE

A. Credit Demand Survey – Ireland by Firm Size



B. European Comparison – Bank Loan Rejection Rates

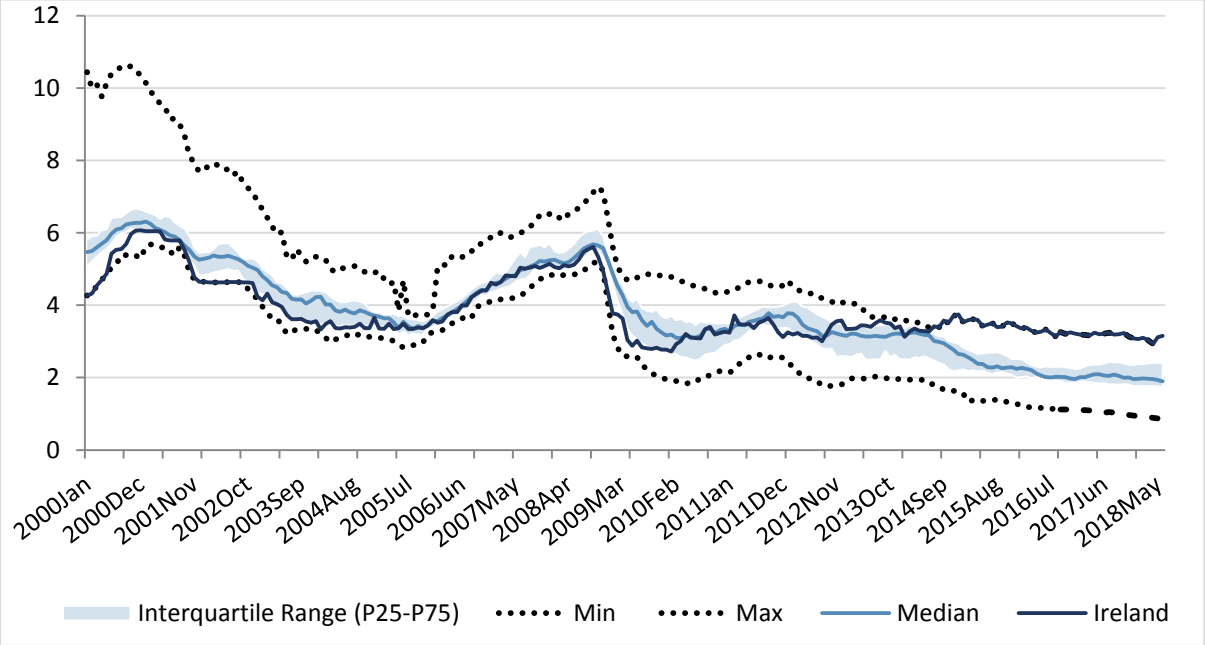


Source: Department of Finance Credit Demand Survey.

Interest rates and the cost of finance

A well-documented recent empirical fact is that the cost of finance in Ireland for both corporate and household credit is high by European standards. More recently, competitive pressures are increasing in the mortgage market and some reductions in lending rates are occurring. The standard variable rate on new mortgage loans in Ireland stood at 3.13 per cent as of Q2 2018; this is down slightly year-on-year from 3.34 in Q2 2017. However, comparing Irish new house purchase loans relative to other Eurozone economies, interest rates on mortgages in Ireland remain the highest of comparator countries (Figure 22).

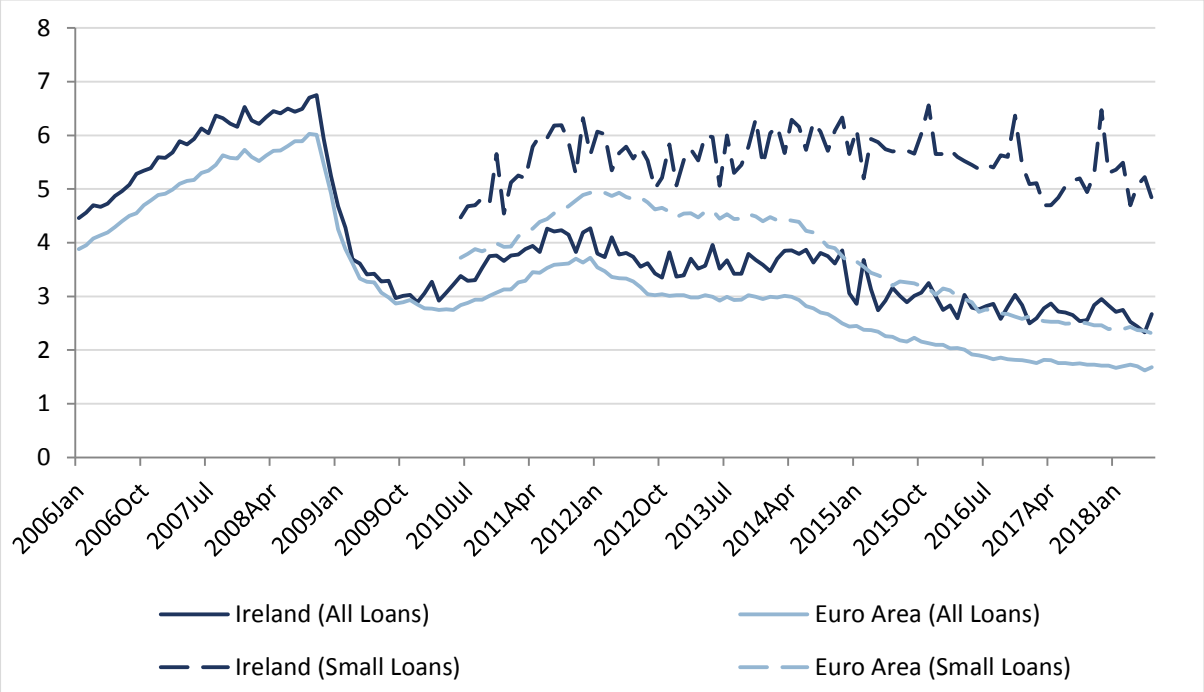
FIGURE 22 INTEREST RATES ON NEW HOUSE PURCHASE LOANS TO HOUSEHOLDS (%)



Source: Central Bank of Ireland, SME Credit Series, Table A.14.1.
Notes: Countries included are: AT, BE, EE, ES, FI, FR, IE, IT, LT, NL, PT, SI. These countries are selected due to data availability. Data differ between this chart presented and the text, as the ECB comparison data include restructured mortgages whereas the new business standard variable rate (SVR) is only for new drawdowns.

A similar picture emerges in relation to corporate interest rates. Figure 23 presents the interest rates on new business loans for Non-Financial Corporations in Ireland relative to the average for the Eurozone. Two series are presented: 1) covering all loans and 2) capturing loans of less than €250,000 which is used as a proxy for loans for SMEs. In June 2018, the average rate on new loans for all Irish corporates was 2.67 per cent whereas the Eurozone average was 1.68 per cent. For small Irish corporate loans, the interest rate in June 2018 was 4.83 per cent compared to the Eurozone average of 2.31 per cent. Interest rates are down year-on-year for small corporates but remain considerably higher than for their European peers.

FIGURE 23 INTEREST RATES ON NEW CORPORATE LOANS – EUROPEAN COMPARISON (%)



Source: ECB MFI data. Small loans refer to loans less than €250,000.

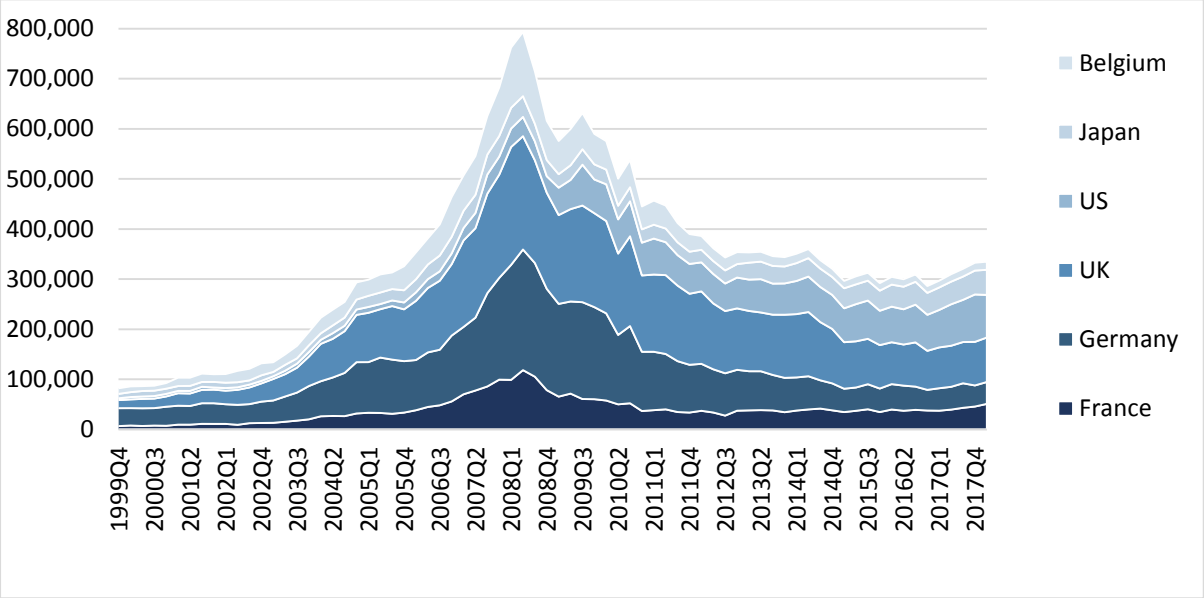
Banking sector stability

With increasing attention focussing on the possibility of overheating in the domestic economy, it is informative to examine the consolidated banking statistics collected by the Bank of International Settlements (BIS) to understand whether the domestic economy growth is increasingly financed by external exposures as occurred during the previous boom.

These data detail the residence of counterparties, by nationality of the international consolidated banking sector. Therefore, the total exposure to the international banking sector for an individual country can be observed. Significant movements in this exposure can indicate large changes in bank lending in the domestic economy.

In Figure 24 the country of residence for financial institutions with the largest outstanding stock of lending to the Irish economy is plotted over the period Q4 1999 to Q1 2018. The loans covered are for all types of financial instruments and maturities.

FIGURE 24 COUNTRY OF RESIDENCE FOR FINANCIAL INSTITUTIONS WITH THE LARGEST OUTSTANDING STOCK OF LENDING TO THE IRISH ECONOMY (US$ MILLION)



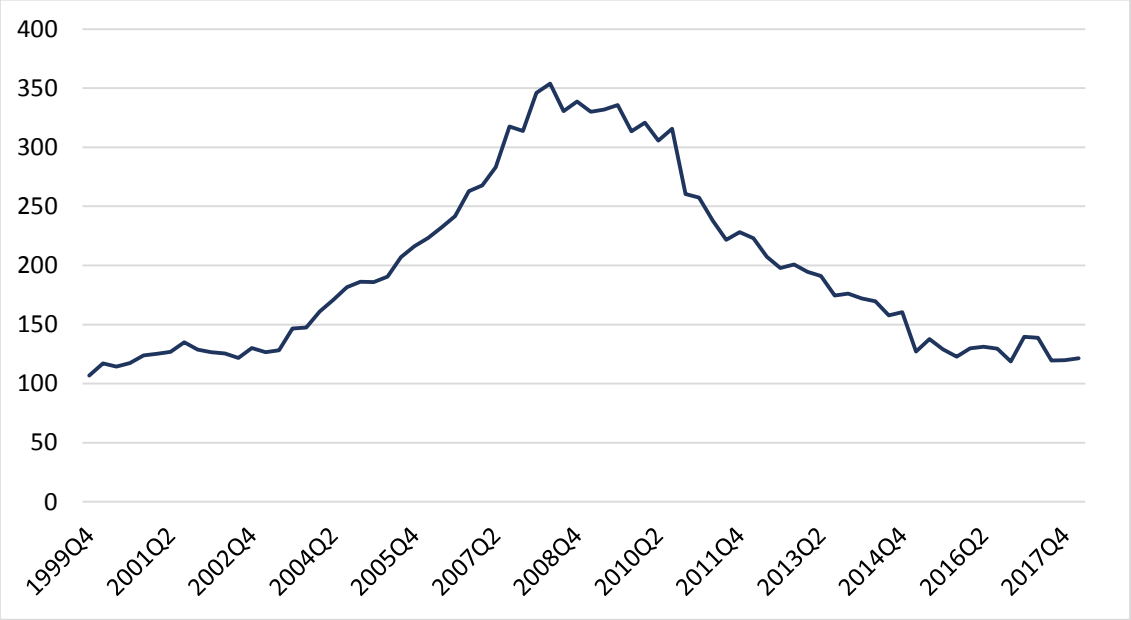
Source: Bank of International Settlements (BIS).

From the chart it is clear that financial institutions in a number of countries significantly increased their lending to the Irish economy in the run up to the financial crisis of 2007/2008. UK and German credit institutions, in particular, had the largest exposure to the Irish economy at that point, while French and Belgian institutions also significantly increased their Irish lending. More recently, after 2008 all countries, with the exception of the United States, have had a declining exposure to the Irish economy. However, the US has seen its financial institutions continuously increase their lending to the Irish economy post-2008 such that by 2018, as a country, the US alongside the UK had the greatest exposure to the Irish economy.

Recently, Avdjiev et al. (2018),[12] amongst others, suggest using the ratio of total cross-border claims to GDP as an indicator of domestic financial stability. As much of this lending by foreign institutions would be to the domestic financial sector, large movements in cross-border flows could indicate the build-up of imbalances both in the domestic economy and domestic credit institutions. In Figure 25 the combined total exposures for each foreign country as a ratio of Irish GDP is presented.

[12] Avdjiev S., Berger B. and H. Shin (2018). 'Gauging procyclicality and financial vulnerability in Asia through the BIS banking and financial statistics', BIS Working Papers, No. 735.

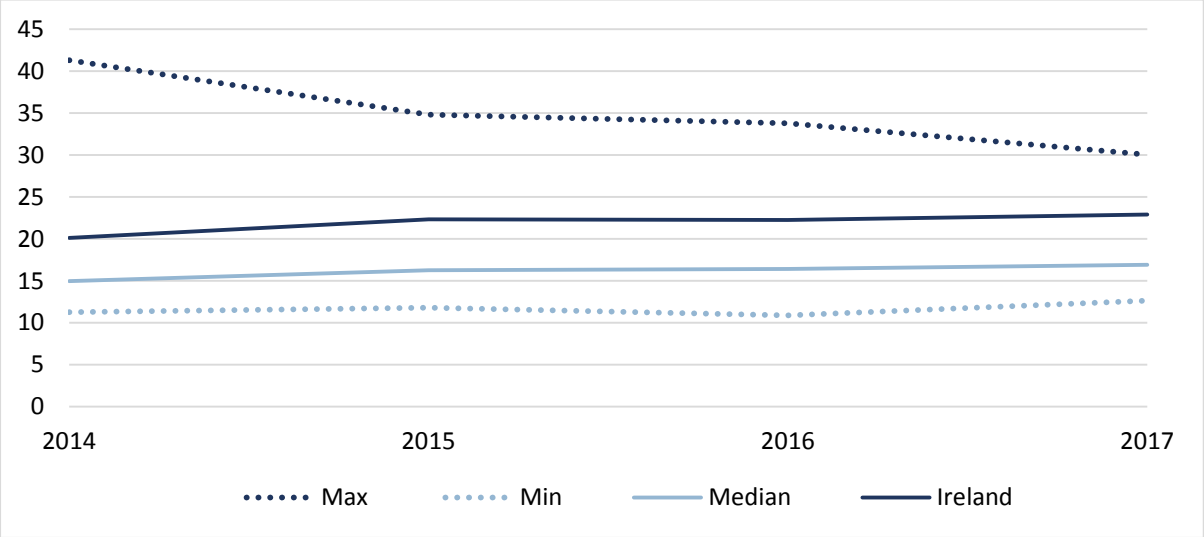
FIGURE 25 RATIO OF TOTAL CROSS-BORDER FLOWS TO THE IRISH ECONOMY TO IRISH GDP



Source: QEC calculations.

Similar to the total level of cross-border flows in Figure 25, the ratio illustrates the substantial increase in cross-border lending into the Irish economy in the run up to 2008. Thereafter, the ratio declines on a significant basis before stabilising around 2014. At present, the ratio is back to its pre-2002 level. This indicator provides an insight into where the vulnerabilities in the Irish banking sector originated from. The improvements in this ratio suggest the financial stability threat from foreign lending into the Irish economy has substantially reduced. Coupled with the current well capitalised nature of the Irish banking sector relative to other European peers (Figure 26), this points towards a more stable Irish banking sector at present.

FIGURE 26 COMMON EQUITY TIER 1 RATIO FOR IRISH BANKS RELATIVE TO EUROPEAN PEERS



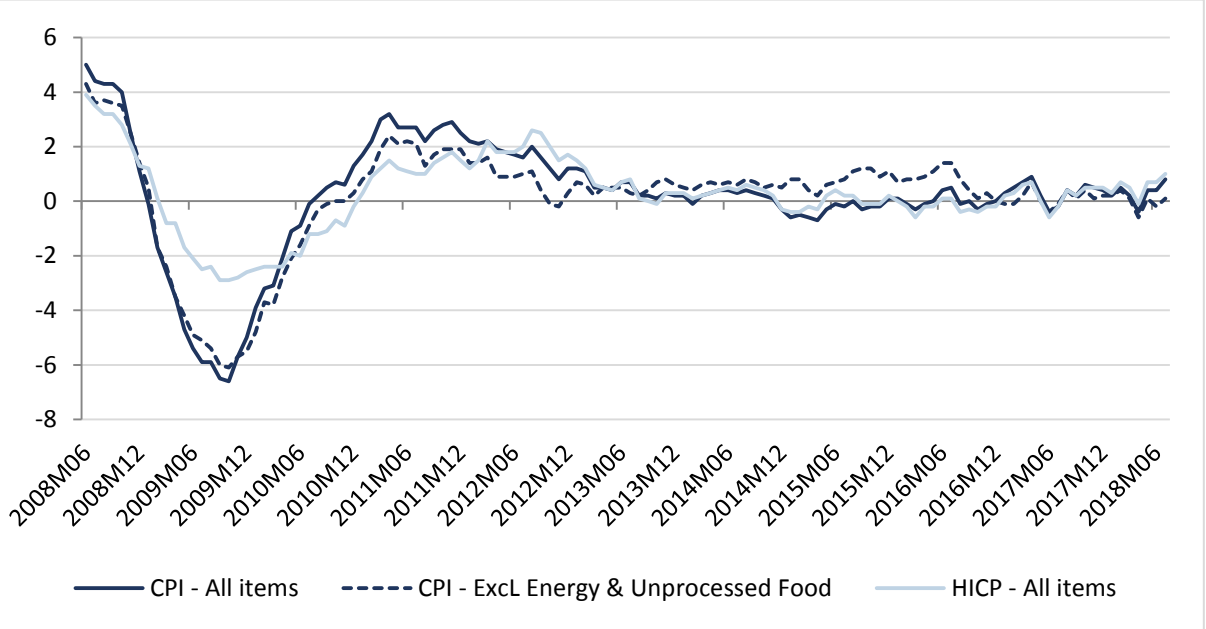
Source: Data taken from ECB SDW Common Tier 1 Equity Ratio cross country series.

Inflation outlook

While inflation remained subdued in the first quarter of 2018, more recent data point towards a gradual rise in prices. Figure 27 presents the inflation rate for the CPI, HCPI, and CPI excluding energy and unprocessed foods. The data to April 2018 indicate a falling price level. However, prices rose in May, June and July of 2018 at an annualised rate of 0.4, 0.4 and 0.8 per cent respectively.

Given the modest increase in inflationary pressures, it is interesting to explore the variation across different groups of products and services. In the year to July 2018, increasing prices were evident in the following areas: housing, water, electricity, gas and other fuels (+5.4 per cent), alcoholic beverages and tobacco (+2.8 per cent), transport (+2.2 per cent), restaurants and hotels (+1.8 per cent), and education (+1.6 per cent). Other goods in the economy continue to experience declines in price with furnishings, household equipment and routine household maintenance down 3.9 per cent, miscellaneous goods and services down 3.2 per cent, food and non-alcoholic beverages down 2.1 per cent and communications down 2.0 per cent.

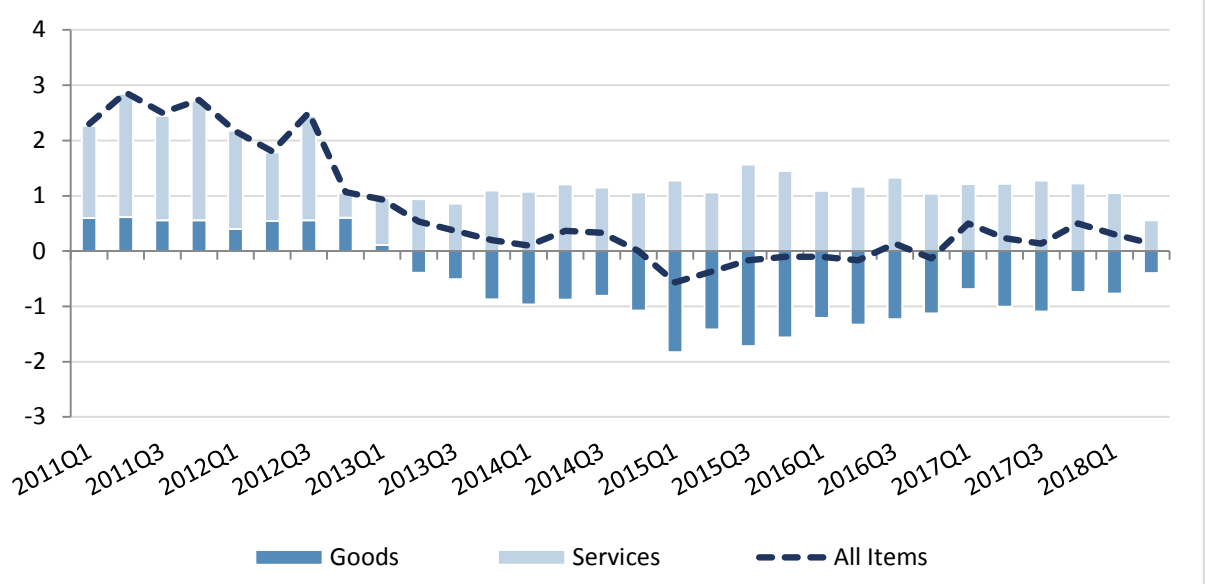
FIGURE 27 ANNUAL GROWTH IN INFLATION (%)



Source: Central Statistics Office.

The difference in price trends between the goods and services sectors is quite apparent. The underlying trends in the CPI (Figure 28) for Q2 2018 indicates service prices have averaged a 0.6 per cent annual increase while the price of goods has fallen by 0.4 per cent.

FIGURE 28 DECOMPOSITION OF ANNUAL (%) CPI GROWTH INTO GOODS AND SERVICES GROWTH



Source: Central Statistics Office.

In light of the *Commentary*'s forecast of strong domestic demand and the continued positive developments in the labour market performance, prices are

expected to increase over the next two years. Consumer prices are expected to increase moderately by 0.7 per cent in 2018, followed by a 1.1 per cent increase in 2019.

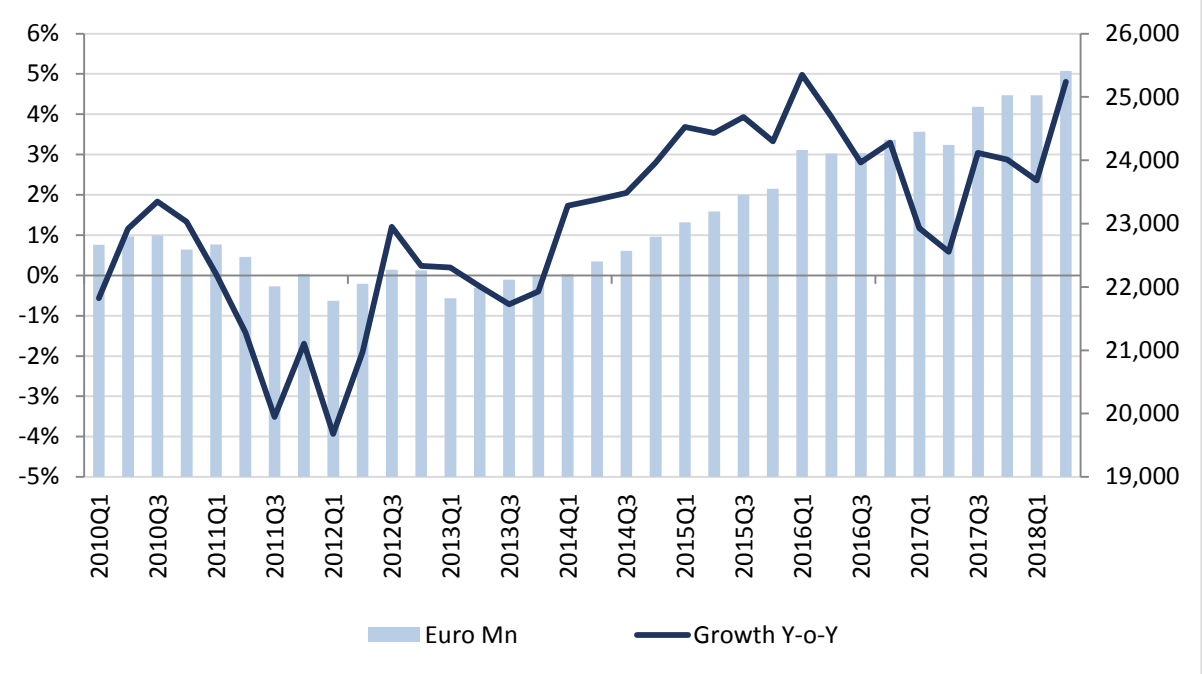
DEMAND

Household sector consumption

A hallmark of the recovery in the Irish economy has been the robust performance of household consumption spending. Quarterly growth rates surpassed 3 per cent on a year-on-year basis for each quarter between Q3 2014 and Q2 2016. Continued increases in consumption levels have been influenced mainly by persistent reductions in unemployment, increasing disposable incomes, improvements in balance sheets and, more generally, a renewed confidence amongst households in the stability of their own finances.

While there was some slowdown in the growth in consumption in late 2016 and early 2017, more recent growth rates appeared to indicate an increase in consumption activity.

FIGURE 29 QUARTERLY PERSONAL CONSUMPTION ON GOODS AND SERVICES – CONSTANT MARKET PRICES AND SEASONALLY-ADJUSTED



Source: Central Statistics Office.
Note: Quarterly National Accounts at constant market prices and seasonally-adjusted.

Retail sales can be used as a leading indicator for consumption as they provide a snapshot of the goods and services households are purchasing and where the

growth in household consumption is coming from. Table 3 presents retail sales for selected items in terms of the annual growth rate in the volume of sales for Q2 2018. For all businesses, retail sales are up 5.8 per cent year-on-year. The significant increase from Q1 2018 is driven by a recovery in motor sales. If motor sales are excluded, the growth rate is unchanged from Q1 2018, remaining at a steady 4.5 per cent growth rate. The recent increase in consumption levels is almost certainly related to these changes in retail sales.

TABLE 3 GROWTH IN SELECT RETAIL SALES (VOLUME) ITEMS (Q2 2018)

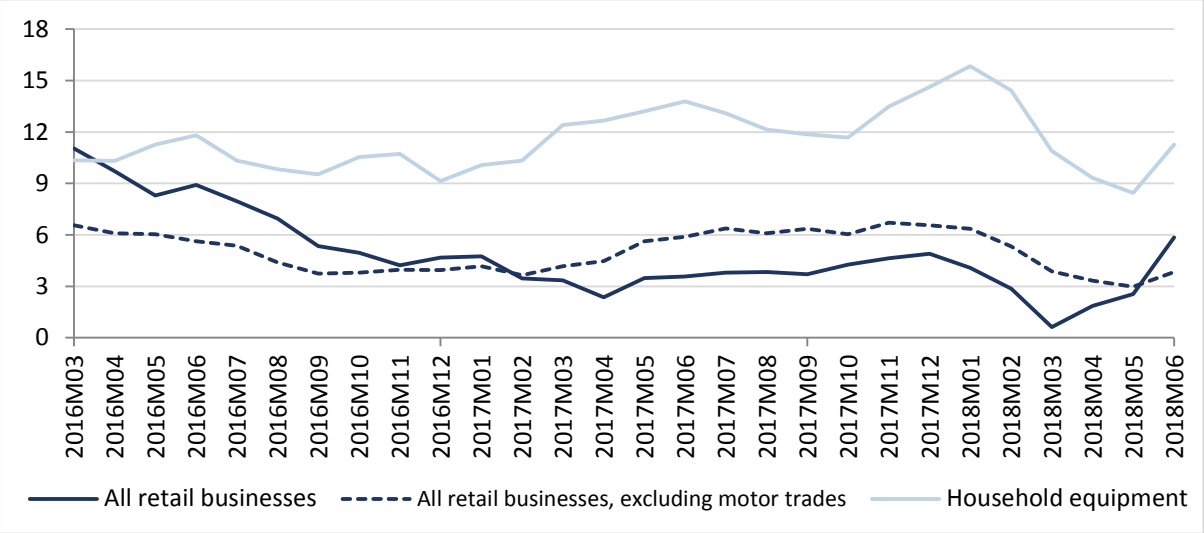
Retail Business NACE REV 2	Volume of Sales Annual % change
Motor Trades	9.5
Non-specialised stores (excluding department stores)	5.5
Department stores	4.1
Clothing, Footwear and Textiles	2.3
Furniture and lighting	8.2
All businesses excl. motor trades	4.5
All businesses	5.8

Source: Central Statistics Office.

The increase in housing market transactions is likely feeding through into the strong growth rates of furniture and lighting products, up by 8.5 per cent year-on-year. The overall trends in retails sales are displayed in Figure 30. This chart presents a three-month rolling average of retail sales for total sales, sales excluding the motor trade, and for household equipment. Sales of housing equipment[13] display a very high growth rate (a rolling three-month average of 12.6 per cent in July), above the average of all retail sales. Quarter 2 data indicate an increase in retail sales, both overall and also in the home improvements category when motor trades are excluded. As household incomes continue to increase and employment growth continues, this should provide a solid foundation for further increases in retail spending.

[13] This includes furniture and lighting; hardware, paints and glass and electrical goods.

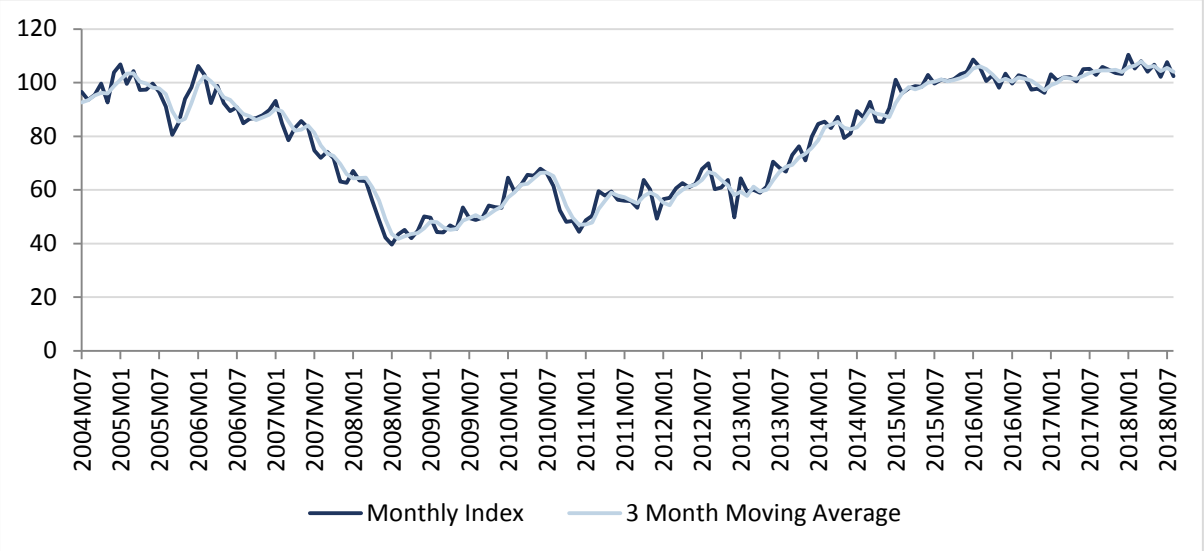
FIGURE 30 GROWTH IN RETAIL SALES INDEX VOLUME ADJUSTED (BASE 2005=100), THREE-MONTH ROLLING AVERAGE (%)



Source: Central Statistics Office.

Figure 31 presents the ESRI/KBC Consumer Sentiment Index which tracks the monthly views of households for their current and future economic perspectives. The Index is built on household responses to five specific questions regarding their view on the following issues: a) Changes to their own personal financial circumstances over the past 12 months; b) Expected changes to their own personal circumstances over the next 12 months; c) their view on the broad economic outlook over the next 12 months; d) their view on the labour market outlook and e) their view on whether or not it is a good time to spend money at present.

FIGURE 31 ESRI/KBC CONSUMER SENTIMENT INDICATORS



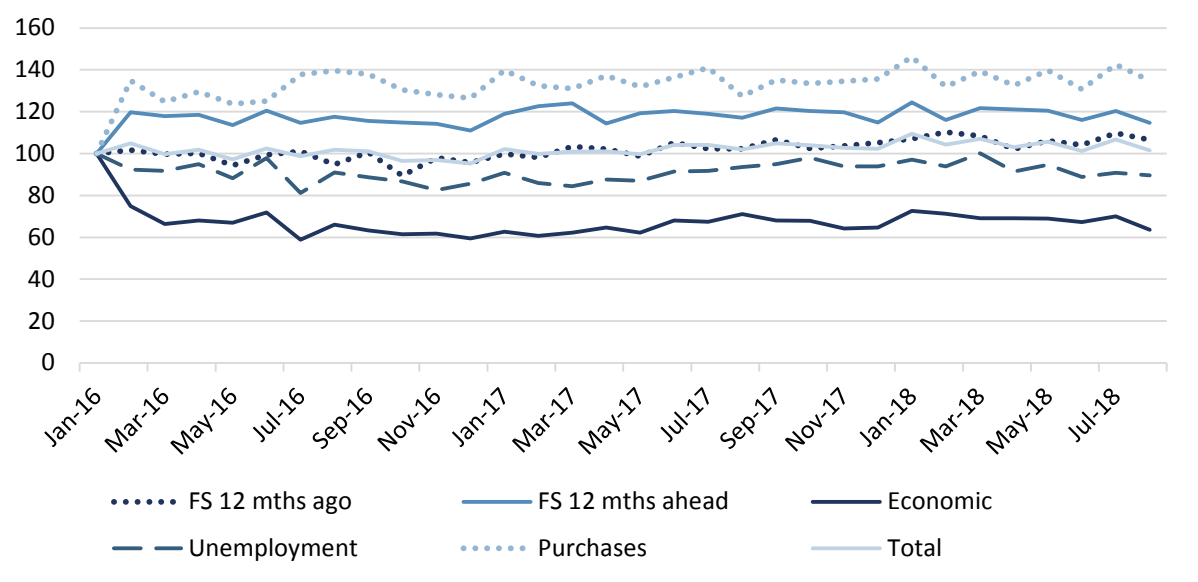
Source: ESRI/KBC.

During Q1 2018, the Index rose strongly indicating an increasingly confident Irish consumer. However, since April the trend has begun to moderate, and this moderation has continued through to August 2018. To understand the relative drivers of the overall trend in more detail, Figure 32 presents the trend in the sub-components of the Index since January 2016. The chart clearly indicates that the growth in the index is coming through channels which relate to the households' own financial situation (FS). The indicators capturing sentiment towards the broader economy (both in terms of the macro-economy and the labour market) have been softer and are below the level seen in 2016.

At present Irish consumers are dealing with two countervailing trends. First, as the domestic economy is growing, many households' finances are becoming stronger and households are increasingly confident in making large purchases. Such sentiments accord with the growth in overall consumption as well as the large increases in retail sales for larger items like furniture and household goods. On the other hand, the ongoing concerns around the economic and financial implications of Brexit and growing tensions in global trade present considerable uncertainties for households. This is potentially reflected in households' more subdued view on the general economic outlook as consumers assert a relatively more cautious outlook.

The extent to which consumption and spending will strengthen in the coming quarters is likely to depend on two factors: a) the translation of domestic economic growth into improved household finances and b) the impact of international events on the Irish economy.

FIGURE 32 ESRI/KBC CONSUMER SENTIMENT INDICATORS – SUB-INDICES

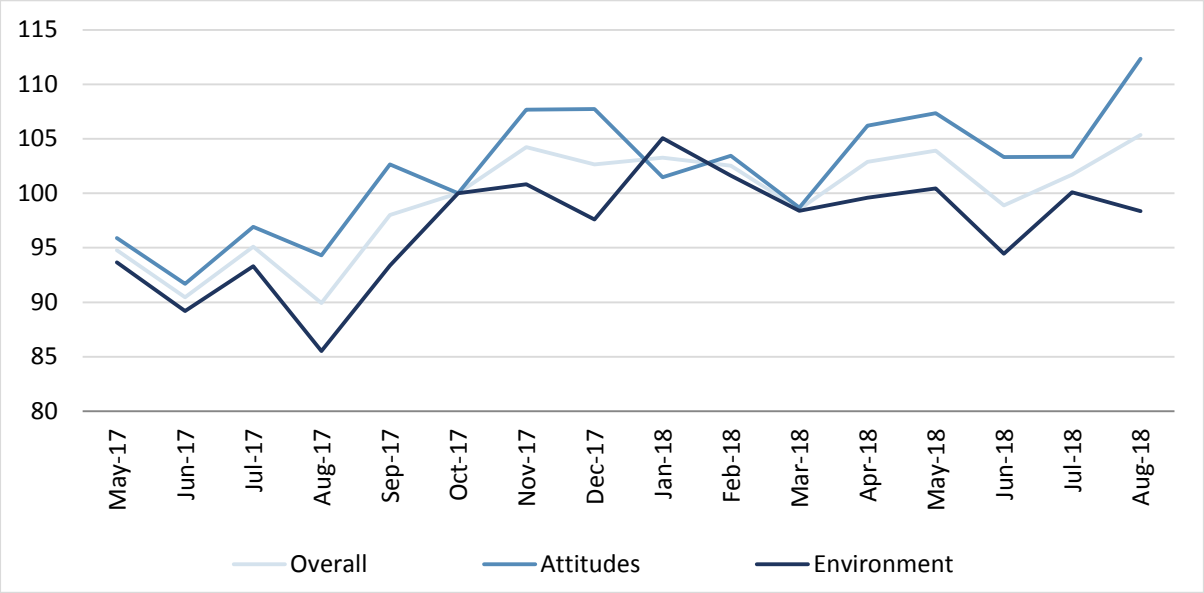


Source: ESRI/KBC.

In addition to understanding trends in consumer sentiment, further insight into Irish households appetite for spending and views on economic activity can be drawn from their savings behaviour. Figure 33 displays the ESRI/Bank of Ireland Savings Index, which measures Irish peoples' sentiment towards savings. The overall index had been rising since August 2017. While it dropped slightly towards the end of Q1 2018, both July and August 2018 have seen a recovery in savings sentiment.

The two sub-indices that compose the Savings Index are the Savings Attitudes and the Savings Environment. The recent performance of the overall Index has been driven by improvements in households' attitudes towards savings. As this sub-index captures the view of consumers as to whether they are saving sufficiently, an increase in this element is likely to accord with the improving household financial positions as indicated by the consumer sentiment figures i.e. Irish households' financial positions have improved so therefore they have additional financial resources to save. The more subdued element is the savings environment sub-index. This captures households' views on whether it is a good time to save now or in 12 months' time and the relative weakness in this indicator is likely picking up the uncertainties relating to the economic environment.

FIGURE 33 SAVINGS INDEX AND SUB-INDEXES, ACTUAL



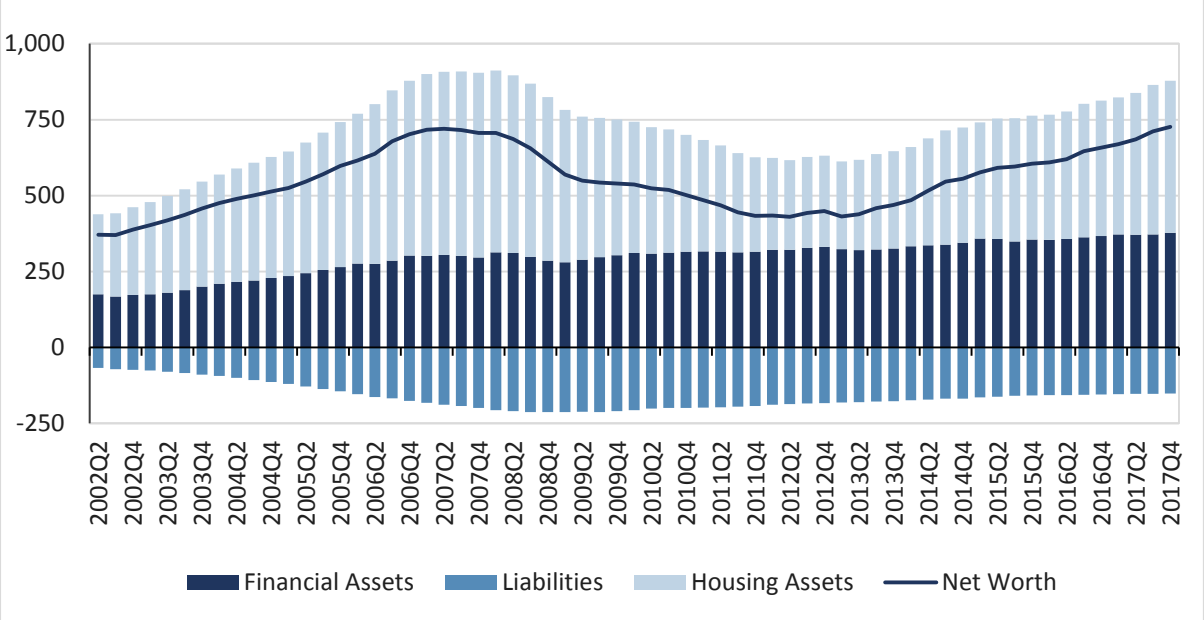
Source: ESRI/Bank of Ireland.

The overall position of Irish households' net worth, which is the stock of financial and housing assets minus the stock of liabilities, is presented in Figure 34. Irish household net worth grew by 2.1 per cent in Quarter 4, 2017 relative to

Quarter 3, as loan repayments reduce the stock of outstanding liabilities (-0.8 per cent), and rising asset prices (+1.7 per cent) raise the total value of domestic balance sheets. Net worth is now at the highest level (€726.8 billion) since the Q2 2007 peak of €719.6 billion. A large proportion of the increase in Q4 2017 was driven by a rise in the housing stock of €8.5 billion. Financial assets rose by €5.1 billion and liabilities declined by €1.2 billion in Q4 2017 relative to Q3 2017.

Household net worth decreased considerably during the financial crisis as housing assets fell sharply in value. In Q2 2012, net worth was at €430 billion and housing assets were worth €295 billion. In Q4 2017, total net worth was up by 69 per cent and housing assets increased by 69.8 per cent. The value of financial assets in the Irish economy has increased by 17.2 per cent relative to Q2 2012 while liabilities are down by 19.0 per cent. The improvement in overall net worth is driven to a large extent by the recovery in the housing market.

FIGURE 34 IRISH HOUSEHOLD NET WORTH (€ BILLION)



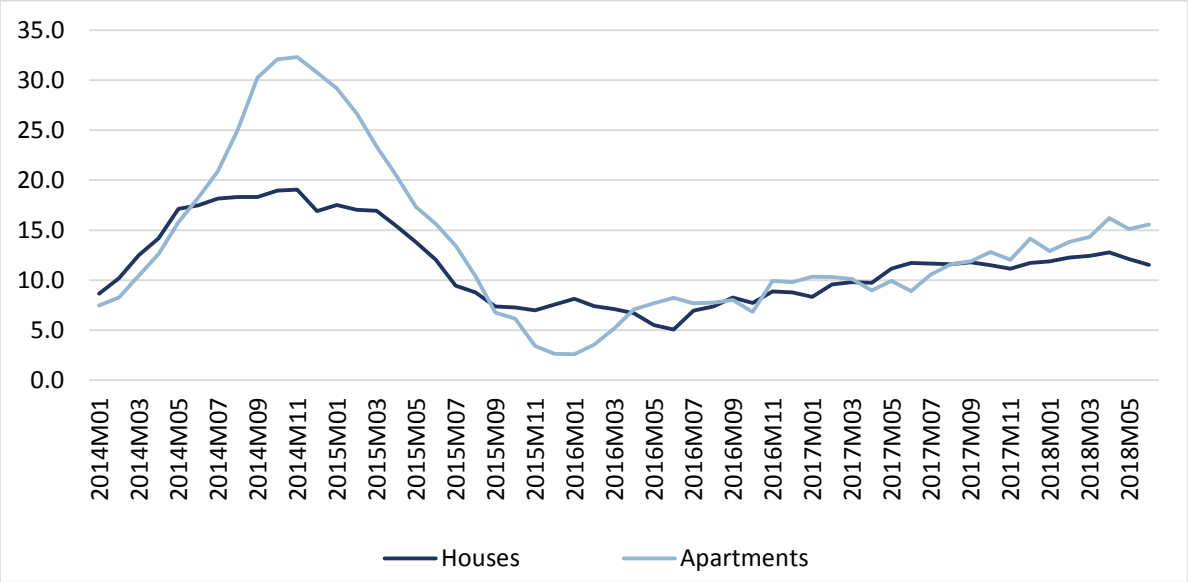
Source: Central Bank of Ireland, Quarterly Financial Accounts.

Looking forward, household consumption is set to continue benefitting from improving household earnings and more resilient household balance sheets. If the continued growth in the domestic economy withstands international shocks, household spending will continue to remain robust. We expect consumption expenditure to grow by 2.2 per cent this year and 2.3 per cent in 2019.

Property market developments

The latest trends in the domestic property market confirm that residential prices are continuing to rise. However from Figure 35 it would appear that, since the beginning of the year, the prices of apartments are increasing somewhat faster than those of houses.

FIGURE 35 ANNUAL RESIDENTIAL PROPERTY PRICE INCREASES (%)

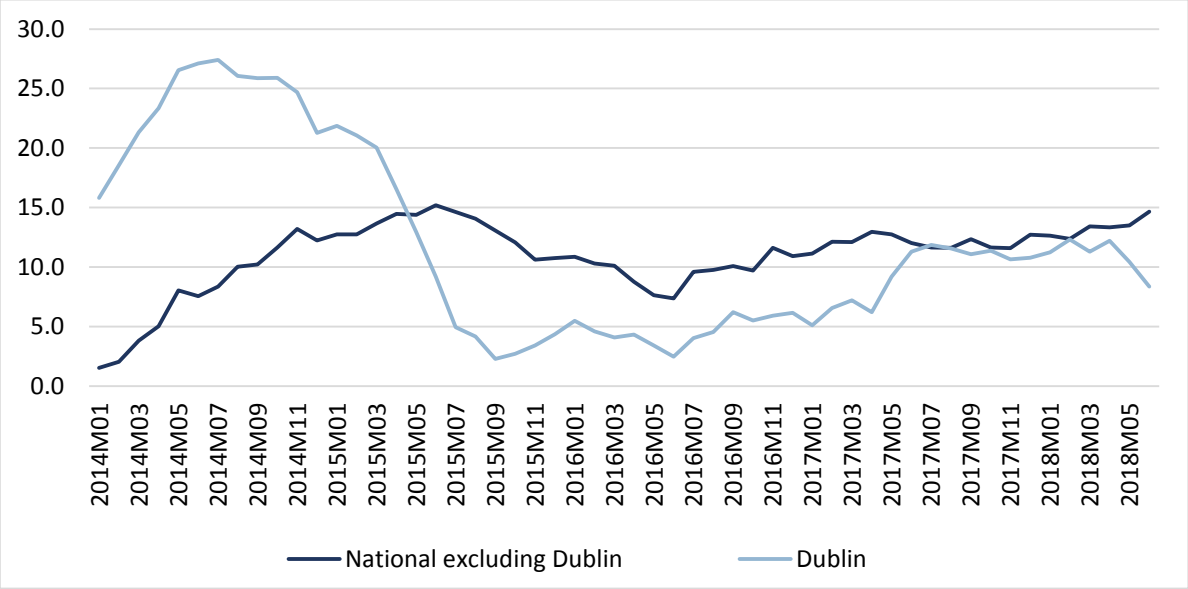


Source: Central Statistics Office.

In a recent update of earlier work on house price analysis, McQuinn (2018) examines the relationship between actual house prices and those levels warranted by fundamental variables in the economy. Examining prices up to Q1 2018, McQuinn (2018) concludes that, while prices have grown substantially over the past number of years, there is still no evidence of a significant divergence between actual and fundamental prices. As property prices now appear to be in equilibrium, McQuinn (2018), argues that future house price levels should now only increase in line with movements in economic fundamentals.

In Figure 36 house price increases for Dublin and the rest of the country are plotted. The trends indicate that while the pace of house price growth continues to increase outside of Dublin, the rate of price increases in the capital have moderated somewhat in 2018. House price growth mid-year is half the rate at the outset of 2018. This moderation may be due to the presence of the macro-prudential regulations which are placing an upper limit on the amount prospective homeowners can borrow from financial institutions. The regulations are likely to be more binding in the Dublin area where house prices and, consequently, the average loan size associated with the property are higher than in the rest of the country.

FIGURE 36 ANNUAL HOUSE PRICE INCREASES FOR DUBLIN AND OUTSIDE OF DUBLIN

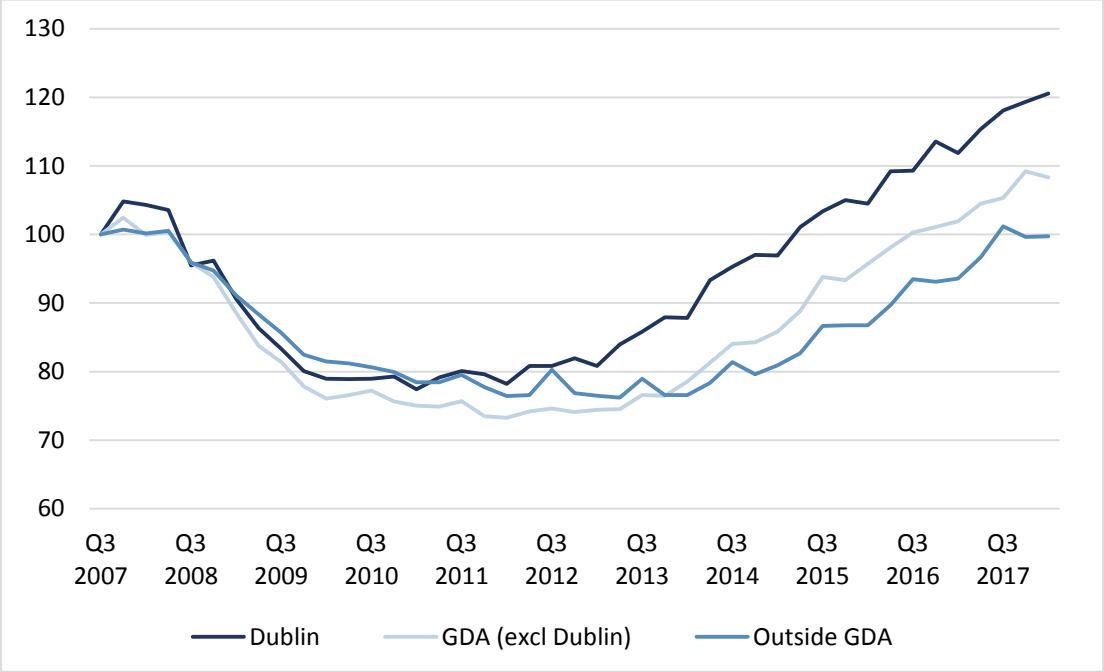


Source: Central Statistics Office.

Rental levels also continue to increase across the country. Despite growing strongly in 2017, standardised average rents continued to trend upwards in the first quarter of 2018. Nationally, rents grew at 7.1 per cent annually in the first quarter, up from 6.4 per cent in Q4 2017. Along with the sluggish response of housing supply, the continued improvement in the labour market and the moderate increase in disposable incomes are contributing factors to the continued inflationary pressures in the rental market.

To better understand regional differences in the market and especially developments in the Dublin market, the ESRI/RTB rental index now produces additional regional indicators. In particular, rental indices are produced for Dublin (including the four local authority areas), the Greater Dublin area (GDA) (excluding Dublin) and the rest of the country (outside the GDA). While rental pressures are evident in Dublin, many of the surrounding counties are also facing increasing rents as supply pressures in the city lead to households choosing to commute. The results are presented in Figure 37.

FIGURE 37 RTB RENT INDEX – DUBLIN, GDA (EXCL. DUBLIN) AND OUTSIDE GDA Q3 2007=100



Source: Central Statistics Office

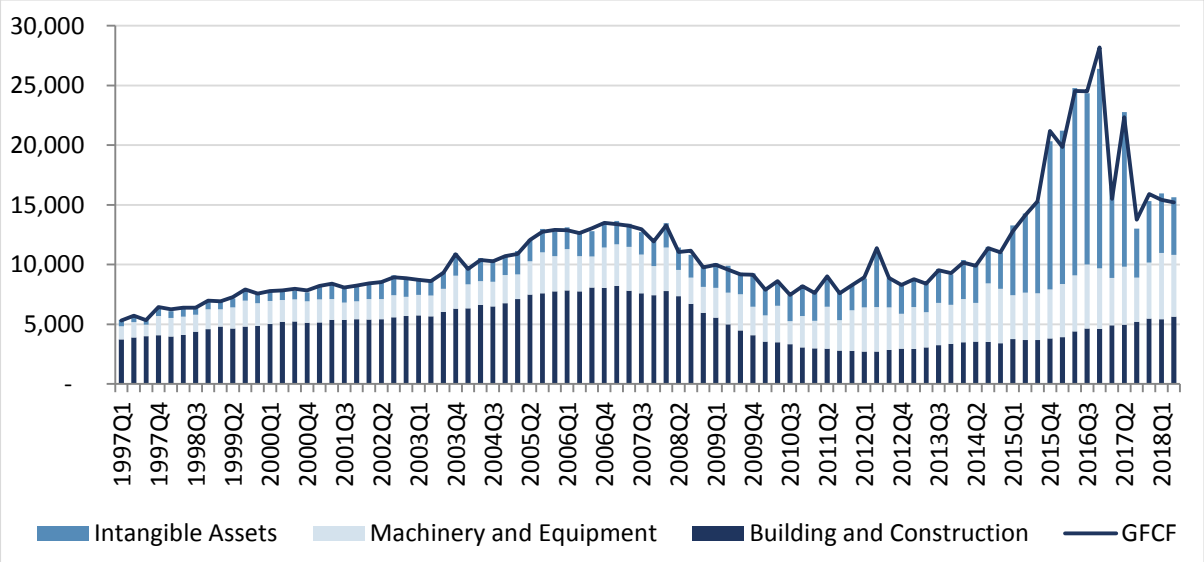
Rent levels in both Dublin and the GDA (excluding Dublin) have clearly grown at a faster pace than the rest of the country since 2013. This could reflect the faster pace of economic growth in the capital. Year-on-year, rents increased by 7.8 per cent in Dublin and 6.4 per cent in the GDA (excluding Dublin) in Q1 2018.

SUPPLY

Investment

Investment levels in Ireland have been increasing strongly over the past number of years, both in terms of overall investment (which is affected by the activities of multinational companies) as well as underlying investment activity (excluding aircraft leasing and intellectual property intangibles). Of particular note has been the marked pick-up in construction investment that has occurred in recent years as the industry begins to respond to rising prices and supply shortages. The latest quarterly data available, Q2 2018, indicate a slight decline in investment on a year-on-year basis, which is purely driven by a 62.8 per cent reduction in intangible investment. This change outweighed the 13.5 per cent increase in construction and the 6.8 per cent increase in machinery and equipment year-on-year.

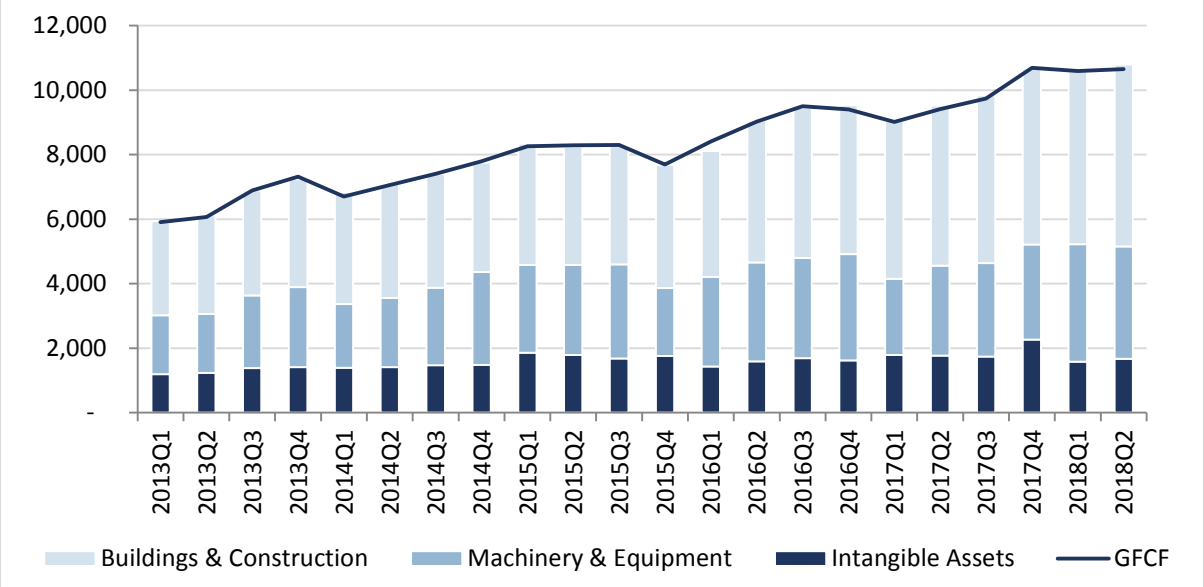
FIGURE 38 COMPONENTS OF INVESTMENT AS A PROPORTION OF TOTAL (€ MILLION)



Source: Central Statistics Office, Quarterly National Accounts Data.

Focusing on the CSO's adjusted series for Gross Fixed Capital Formation, modified GFCF, (which adjusts for the effects of trade in aircraft by aircraft leasing companies and the importation of intellectual property), a different trend emerges. It can be seen the adjusted data display a much more consistent growth pattern. On an annualised basis overall modified investment increased by 13.2 per cent in the year to Q2 2018. This is composed of an increase of 14 per cent in buildings and construction, a 25 per cent increase in machinery and equipment and a 5 per cent decline in intangible assets.

FIGURE 39 MODIFIED GROSS DOMESTIC CAPITAL FORMATION (€ MILLION)



Source: Central Statistics Office, Quarterly National Accounts Data.

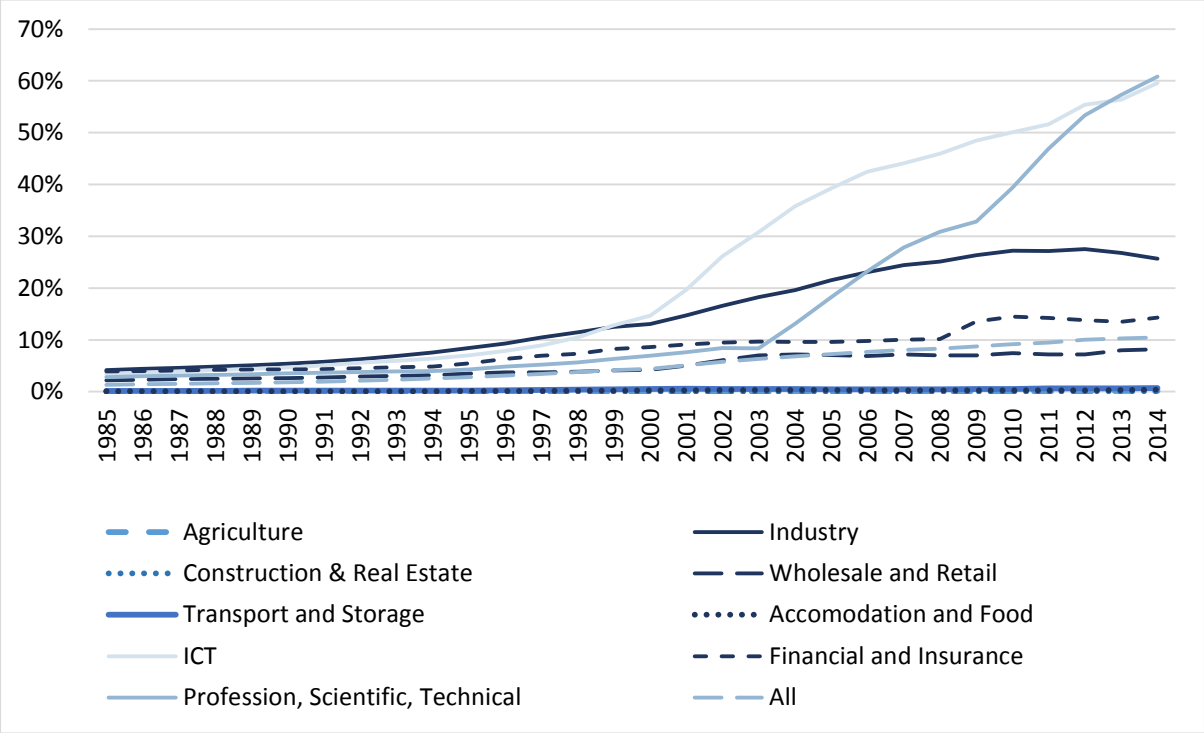
As noted in a previous *Commentary*, the impact of multinationals on the investment data in the National Accounts poses a particular challenge in understanding the investment of domestic enterprises and in particular that of SMEs. A focus on SME activity is critical given their importance to job creation and regional development. Recent research also points towards a productivity gap for domestic enterprises (Papa et al., 2018)[14] and an investment gap for SMEs (Lawless et al., 2018).[15] Research by Gargan et al. (2018) published as a Special Article to this *Commentary* uses new survey evidence compiled as part of the Department of Finance Credit Demand Survey to provide an overview of investment activity by Irish SMEs. They profile the types of assets SMEs are investing in, how firms are financing these investments and what barriers firms face to investment. A number of findings emerge from their research which are important in understanding the divergences between the multinational and domestic sectors in Ireland. They find that two in every three SMEs invested in their staff, one-in-two invested in fixed assets and less than one-in-ten invested in intangible assets in 2016. SMEs were, in general, satisfied with their investment levels or their current capacity with only one-in-five facing a capital gap. This evidence suggests that SMEs have scope to increase investment in order to address capital shortfalls.

One of the interesting findings of the survey is the low share of intangible investment amongst Irish SMEs. This contrasts quite starkly with the high share of intangibles that makes up the aggregate investment figure. These data can be corroborated by analysing the CSO capital stock at a sectoral level. Figure 40 presents the share of intangible assets as a percentage of total gross capital stock by sector over the period, 1985-2014. It can be seen that intangible asset growth has risen rapidly in particular sectors (such as ICT, professional, technical and scientific, and industry), in recent years. However, such assets are not used as capital inputs by many of the large SME sectors (construction, wholesale and retail, transport, and accommodation).

[14] Papa, J., L. Rehill and B. O'Connor (2018). 'Patterns of Firm Level Productivity in Ireland', Department of Finance Technical Working Paper.

[15] Lawless, M., C. O'Toole and R. Slaymaker (2018). 'Estimating an SME investment gap and the contribution of financing frictions', ESRI Working Paper series, No. 589.

FIGURE 40 INTANGIBLE ASSETS AS PERCENTAGE OF CAPITAL STOCK BY SECTOR (1985-2014)



Source: Central Statistics Office, Annual Capital Stock and Assets Data.

The absence of intangible assets as capital inputs for these sectors may limit the extent to which knowledge-based capital can improve their productivity performance over the medium term. Recent research by Di Ubaldo and Siedschlag (2017)[16] highlights the benefit of investment in knowledge-based capital for Irish enterprises as a means of improving domestic productivity. However, the diverse nature of the SME base, and their low level of investment in intangible assets due to more traditional production structures, may pose challenges for firms in absorbing technology driven productivity gains. While these sectors are large employers and contribute considerably to job creation, boosting their labour productivity may be difficult and should be the focus of additional research.

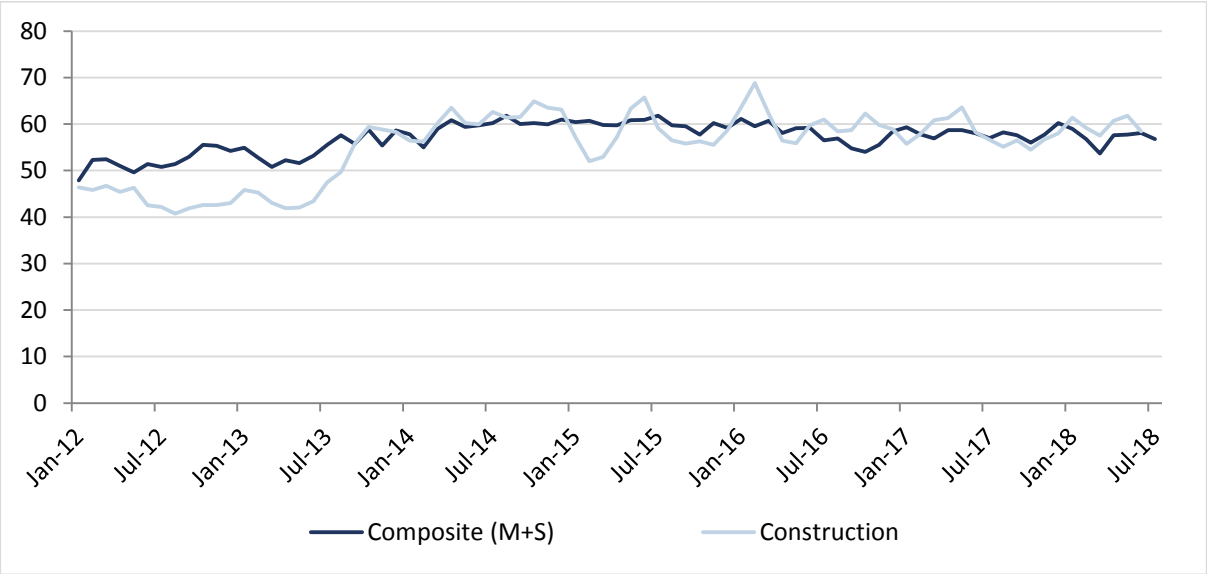
Current business sentiment

To provide some insight into the current plans of enterprises, the Markit Purchasing Manager's Index provides another indicator of activity in the manufacturing, services and construction sectors. In Figure 41, an Index reading above 50 indicates an expansion. In the first few months of 2018, the Index

[16] Di Ubaldo, M. and I. Siedschlag (2017). 'The impact of investment in knowledge-based capital on productivity: firm-level evidence from Ireland', No WP556, Papers, Economic and Social Research Institute (ESRI), https://EconPapers.repec.org/RePEc:esr:wpaper:wp556.

trends upwards for construction and remains well above 50 for manufacturing and services.

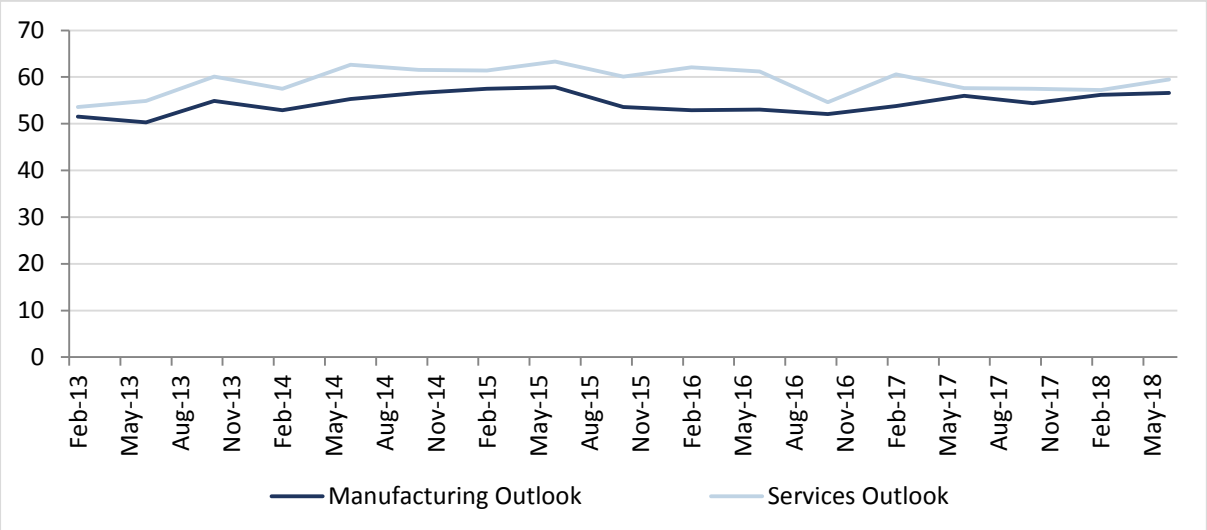
FIGURE 41 BUSINESS AND CONSTRUCTION PMI FOR IRELAND



Source: Markit.

Figure 42 considers the business outlook for purchasing activity as monitored by the Markit index. Both indicators are trending upwards in 2018 pointing towards an improvement in business sentiment.

FIGURE 42 FORWARD LOOKING INDICATORS FOR PURCHASING ACTIVITY

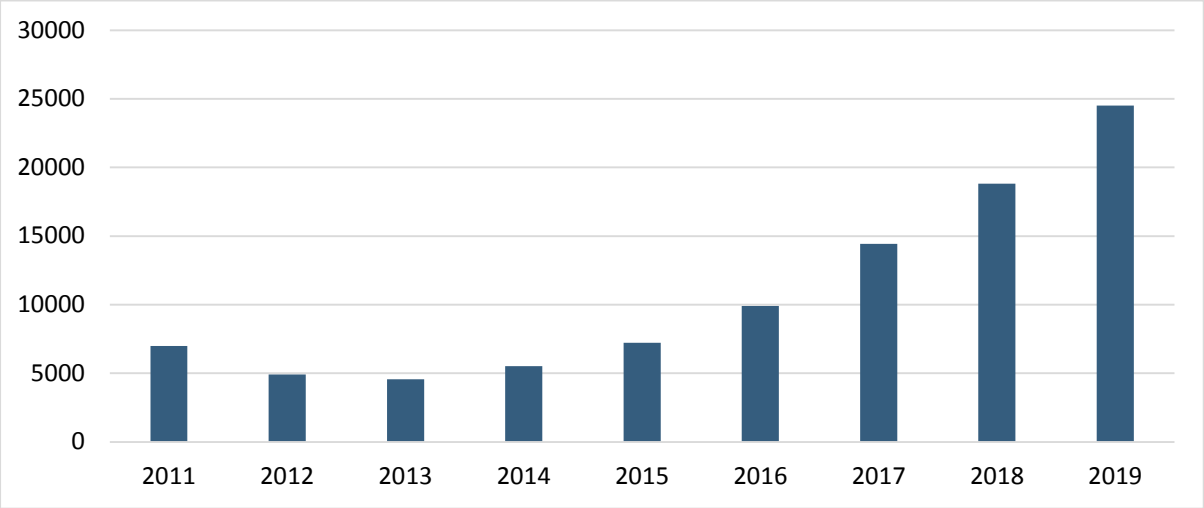


Source: Markit.

Construction investment

We expect that building investment will continue to increase particularly as the rate of housing construction expands. Based on trends in housing market activity, we forecast 18,655 units to be completed in 2018 increasing to 24,500 units in 2019 (Figure 43). Consequently, despite the international uncertainties, we expect annual average growth in investment of 9.8 per cent in 2018 and 8.9 per cent in 2019.

FIGURE 43 BUSINESS AND CONSTRUCTION PMI FOR IRELAND



Source: CSO and QEC Forecasts.

LABOUR MARKET

As the Irish domestic economy continues to grow strongly, employment levels for the first half of 2018 surpass previous record levels observed for the Irish economy in 2007. Seasonally-adjusted unemployment fell by 0.1 percentage points to 5.8 per cent in Q2 2018. Persistently low inflation and rising rates of growth in wages have resulted in moderate and yet well distributed improvements in real earnings for the same period.

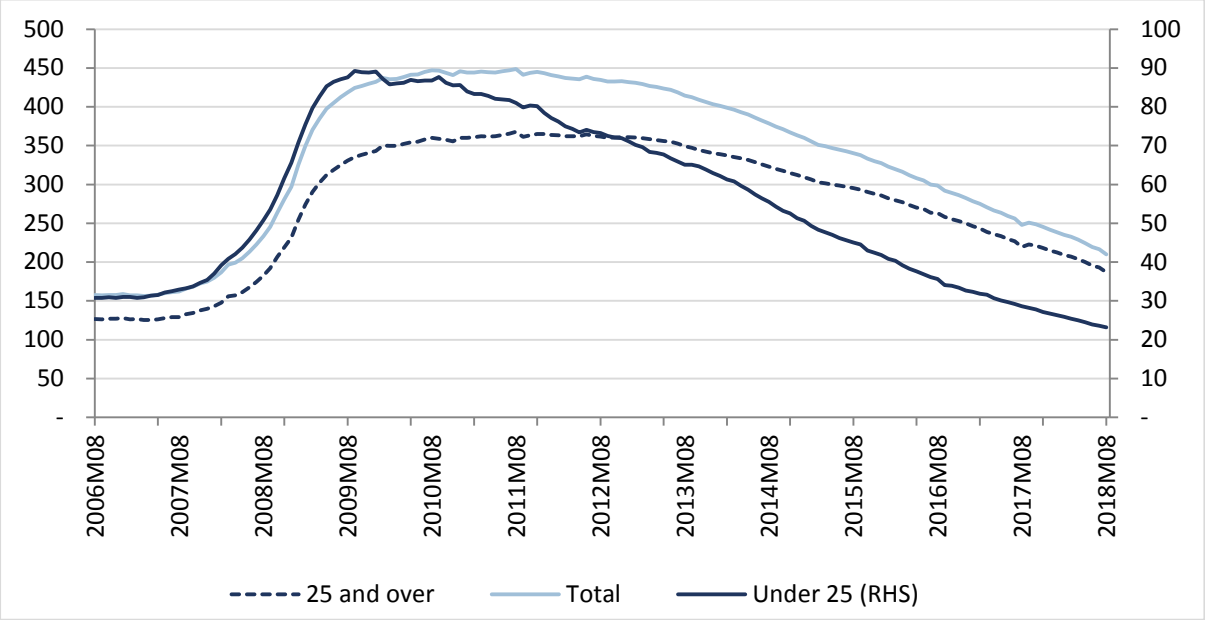
Unemployment

While the Live Register is not a precise measure of unemployment,[17] as it includes part-time and some seasonal and casual workers, it is one of the most up-to-date and detailed labour market measures. The recent August release of the Live Register highlights the downward trajectory of unemployment throughout 2018. Since January, the seasonally-adjusted Live Register recorded a decrease of 28,600 (-8.6 per cent) in August 2018, leaving a total of 209,900

[17] The Live Register provides a monthly series of the numbers of people registered for Jobseekers Benefit, Jobseekers Allowance or other statutory entitlements at the Irish Department of Social Protection.

people out of work. On a year-on-year basis, this represents a decrease of 38,100 (-15.4 per cent). As can be seen from Figure 44, 23,200 individuals under 25 years old were on the Live Register in August 2018. Relative to July 2017, this represents a 19.2 per cent decrease in those registered.

FIGURE 44 NUMBERS ON THE LIVE REGISTER ('000) BY AGE: JULY 2006 TO JULY 2018



Source: Central Statistics Office.

Since 2012 the Live Register publishes detailed data on the duration of the registries, which can be used as a proxy for short- and long-term unemployment (Table 4). While short-term unemployment experienced the largest decline in the initial phase of the economic recovery, since mid-2015 long-term unemployment has been falling more rapidly. On a yearly basis, long-term unemployment fell by 17.7 per cent in August 2018 while short-term unemployment fell by 12.6 per cent.

The percentage of long-term unemployed individuals on the Live Register peaked at 48.2 per cent in September 2014. This compares with 40.8 per cent in August 2018. Being unemployed for a very long time can have scarring effects on an individual; it might not only lead to the loss of human capital and self-confidence but also discourage workers out of the labour force.[18] These are the workers for whom reintegration in the labour market is the most difficult. Despite a supportive policy context, as well as the economic recovery, Ireland's rate of

[18] Edin, Per-Andres and Magnus Gustavsson (2008). 'Time Out of Work and Skill Depreciation.' *Industrial Labor Relations Review*, 61(2): 163-180.
Abraham, Catharine G., Kristin Sandusky, John Haltiwanger and James R. Spletzer (2016). 'The Consequences of Long Term Unemployment: Evidence from Matched Employer-Employee Data,' Working Papers 16-40, Center for Economic Studies, US Census Bureau.

long-term unemployment remains high by European standards. Of the unemployed, 23.2 per cent are in very-long-term unemployment (three years or more). If rates over the last year maintain, it would take almost ten years for the very-long-term unemployment to return to the previous lows experienced in the period prior to 2007.

TABLE 4 PERSONS ('000) ON THE LIVE REGISTER CLASSIFIED BY DURATION

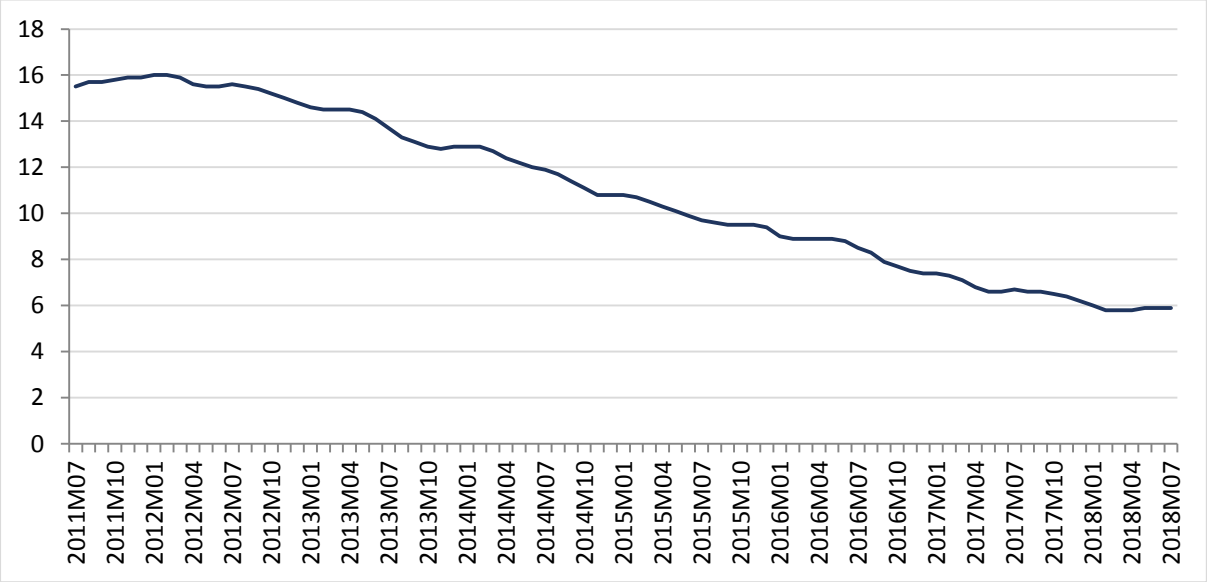
	2014 M08		2018 M08	
	('000)	%	('000)	%
All durations	398.0		223.6	
Under 1 year	210.5	52.9	130.9	59.2
1 year and over	187.5	47.1	92.7	40.8
1 year – less than 2 years	51.6	13.0	24.9	11.2
2 years – less than 3 years	32.6	8.2	14.3	6.5
3 years and over	103.3	26.0	53.5	23.2

Source: Live Register, Central Statistics Office.

In terms of the last occupation held by those on the Live Register in July 2018, craft and related occupations constitutes the largest share of registered individuals. This sector also experienced the largest decrease over the past year, declining by 18.9 per cent. Based on the CSO's Monthly Unemployment publication,[19] the seasonally-adjusted unemployment rate fell to 5.6 per cent in August 2018.

[19] Unemployment rate is based on Labour Force Survey (LFS) data (which replaced the old QNHS), with Live Register data used to adjust trends for periods for when no LFS data are available.

FIGURE 45 SEASONALLY-ADJUSTED UNEMPLOYMENT RATE BY MONTH (%)



Source: Labour Force Survey, Central Statistics Office.

Employment

The Q2 2018 seasonally-adjusted Labour Force Survey indicated that 74,700 jobs were added relative to the same period last year (+3.4 per cent), bringing the number of persons in employment to 2,256,500. The largest year-on-year growth rates were recorded in the construction (+13.7 per cent), accommodation and food (+10.9 per cent), and administrative and support service (+8.7 per cent) sectors. Annual growth in the ICT sector has modified somewhat in Q2 2018 (+1 per cent, having increased by 8.8 per cent for the same period last year). Agricultural employment decreased by 3.8 per cent for the same period, falling by 7.8 per cent since the outcome of the Brexit referendum. As Lawless and Studnicka (2017) highlight, this sector bears a considerably higher share of exposure to potential Brexit fallouts and hence may continue to experience disproportionally larger shares of job loss in the future as well.[20]

As of Q2 2018, employment in the Irish economy now surpasses its previous peak level (2,252,200 in Q3 2007). Full-time (seasonally-adjusted) employment increased by 72,900 (+4.2 per cent) year-on-year to 1,798,700. Full-time employment now accounts for 79.8 per cent of total employment; this compares with 82.2 per cent in the Q1 2007 peak and 75.2 per cent in the downturn in Q1 2013. Part-time employment has risen by 1,200 (+0.3 per cent) to 456,300 and now accounts for 20.2 per cent of total employment.

[20] Lawless, M. and Z. Studnicka, 2017. 'Potential Impacts of WTO Tariffs on Cross-Border Trade', InterTradeIreland, Brexit Research Report. Available at: https://intertradeireland.com/brexit/brexit-research.

The overall employment rate[21] of 68.5 per cent in Q2 2018 remains below pre-crisis peaks but continues to trend upward. Considerable disparities between gender and skills groups remain and in some cases have intensified (Table 5 and Table 6). Employment rates are particularly low among the less educated when compared to the EU.

Across all the educational levels, the gender gap in employment rates has been marginally widening since Q1 2014. In 2014, the gap in employment rates between men and women was 10.4 percentage points, in 2017 the gap was 10.6 percentage points and has averaged 10.8 percentage points in 2018. Employment rates among less educated females within the labour force are considerably lower; only 24.7 per cent of women with lower secondary education or less are in employment, 21.6 percentage points below the rate for men with similar education levels. However, the gender gap lessens as the level of education increases; 81.4 per cent of women with tertiary education are in employment compared with 89.4 of men in the same category.

TABLE 5 EMPLOYMENT RATES (15-64 YEARS) BY GENDER AND EDUCATION (%)

Gender	Education levels	2014	2017	2018*
Total	All Education levels	63.1	67.7	68.2
	Lower secondary or below	34.9	37.0	36.6
	Upper secondary and post-secondary non-tertiary	63.2	67.5	68.8
	Tertiary	80.5	84.2	85.0
Male	All Education levels	68.4	73.0	73.7
	Lower secondary or below	43.7	46.2	46.3
	Upper secondary and post-secondary non-tertiary	70.4	75.1	76.0
	Tertiary	84.9	88.5	89.4
Female	All Education levels	58.0	62.4	62.8
	Lower secondary or below	24.0	25.6	24.7
	Upper secondary and post-secondary non-tertiary	56.0	59.7	61.2
	Tertiary	77.0	80.7	81.4

Sources: Labour Force Survey, Central Statistics Office. 2018 uses an average of Q1 and Q2 data.

Overall employment rates in Ireland remain similar to the average among European Union countries. In Q1 2018, employment rates among the young (15-24 years) and the older (55-64 years) are higher in Ireland than the EU average, while prime age workers (25-54 years) face lower employment rates. Among the least educated of the working age population, employment rates were lower relative to the EU market. The lower rates of employment amongst the 15-24 age group compared with other EU countries may reflect the relatively high rates of

[21] Defined as the proportion of the working age population that is in employment.

tertiary education attainment in Ireland. Participation in the labour force continues to improve as labour market shortages begin to arise in various sectors. The participation rate for those 15 years and over averaged 62.3 per cent in Q2 2018, rising from 61.9 per cent the previous year.

TABLE 6 Q1 2018 EMPLOYMENT RATES BY AGE GROUP AND EDUCATION (%)

		Ireland	EU
All Education levels	Total (15-64 years)	67.9	67.8
	From 15 to 24 years	37.4	34.4
	From 25 to 54 years	79.0	79.7
	From 55 to 64 years	59.4	57.8
Lower secondary or below	Total (15-64 years)	36.4	45.1
	From 15 to 24 years	9.1	18.6
	From 25 to 54 years	55.5	61.8
	From 55 to 64 years	45.1	42.9
Upper secondary and post-secondary non-tertiary	Total (15-64 years)	68.3	70.9
	From 15 to 24 years	51.8	45.9
	From 25 to 54 years	75.8	80.9
	From 55 to 64 years	63.2	59.8
Tertiary	Total (15-64 years)	85.1	84.4
	From 15 to 24 years	76.7	62.8
	From 25 to 54 years	87.7	88.3
	From 55 to 64 years	71.8	72.8

Sources: Labour Force Survey, Central Statistics Office, Eurostat.

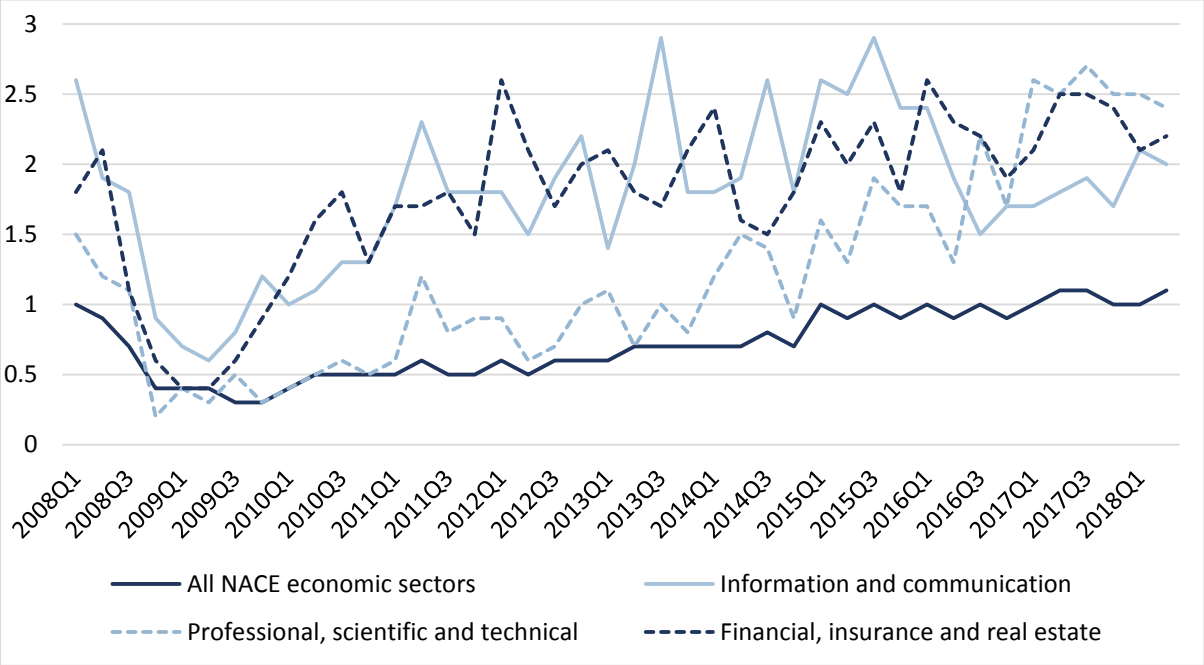
The disparities in the employment rates and other labour market outcomes across individuals with different educational backgrounds could also be suggestive of a skills mismatch in the Irish economy. On a European level, it appears a skills mismatch has led to one-in-four employees now operating below their productive capacity and 40 per cent of the adult workforce indicating they are overskilled in their current roles.[22]

Conversely, employers in other sectors may be facing greater skill shortages. As Figure 46 highlights, the distribution of vacancies is heavily skewed towards the ICT, real estate, financial, insurance and other professional, scientific and technical activity[23] sectors. The overall jobs vacancy rate continues to trend upward, rising from 0.7 per cent in Q2 2014 to 1.1 per cent in Q2 2018.

[22] See McGuinness, S., P. Konstantinos and P. Redmond (2017). 'Skills Mismatch: Concepts, Measurement and Policy Approaches', *Journal of Economic Surveys*, Vol. 32 (4), pp. 985-1015.

[23] Includes but not limited to legal advice and representation; accounting, bookkeeping, and payroll services; architectural, engineering, and specialised design services; computer services; consulting services; research services;

FIGURE 46 JOB VACANCY RATE BY SECTOR (%)



Source: Labour Force Survey, Central Statistics Office.

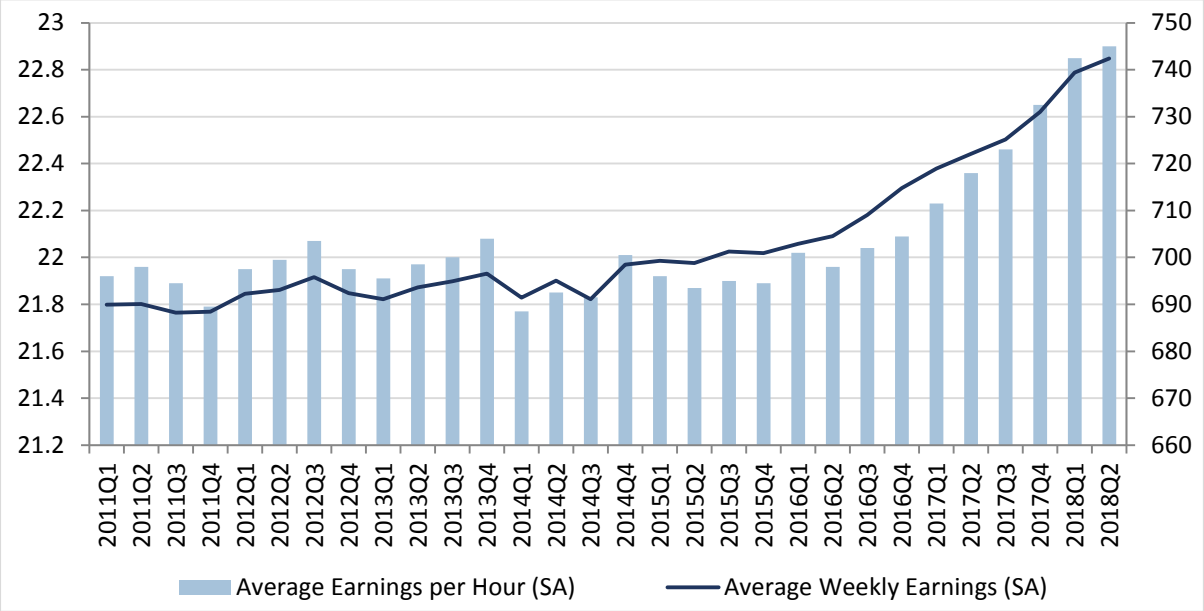
Some of these shortages are being eased through migration and investment in training and education. An influx of net migration in 2018 introduced 29,800 working age individuals to the Irish labour market, representing a 55 per cent increase relative to 2017. Of this amount, 2,500 individuals were unemployed whereas net migration introduced no additions to unemployment in 2017.

Earnings

In Q2 2018, seasonally-adjusted Average Hourly Earnings increased by 2.4 per cent to €22.90 per hour relative to the same period last year. The largest increase for the quarter was observed in financial, insurance and real estate activities, rising annually by 4.3 per cent (an additional €1.73 per hour). Other notably high increases occurred in construction (+4.3 per cent), ICT (+4.2 per cent) and education (+3.6 per cent). Figure 47 highlights wages persistently trending upwards since the end of 2015. As of Q2 2018, average weekly earnings reached €742.41, representing a 2.8 per cent increase from €722.09 in Q2 2017. An annual increase both in hourly earnings and paid hours resulted in a 5.5 per cent rise in average weekly earnings in the construction sector.

advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific and technical services.

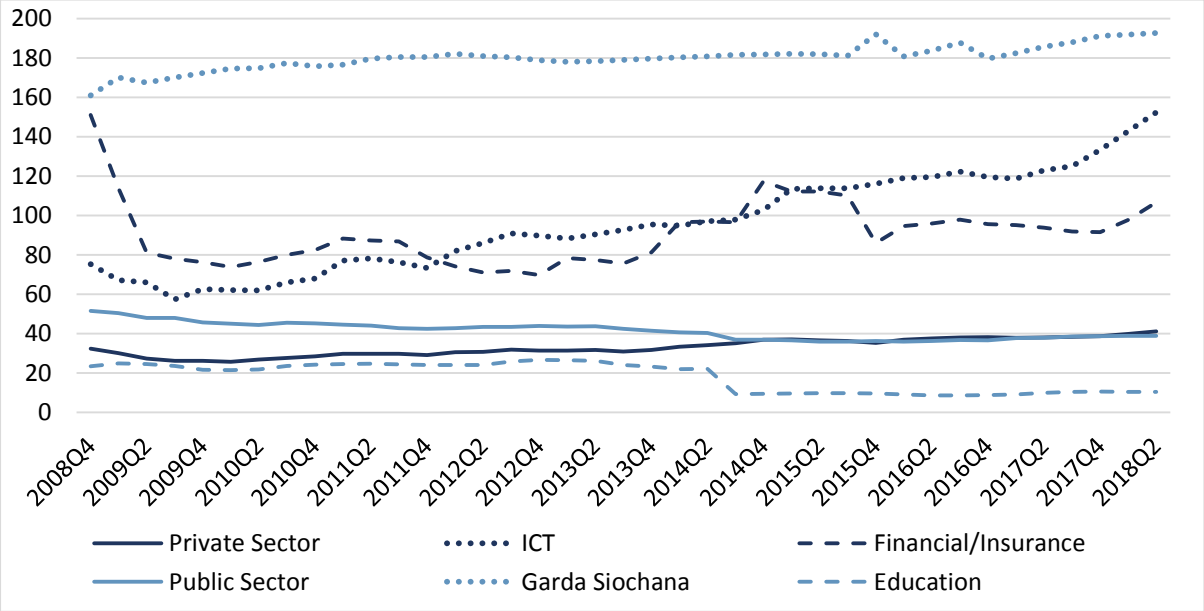
FIGURE 47 TRENDS IN AVERAGE EARNINGS PER WEEK AND PER HOUR (€), SEASONALLY-ADJUSTED



Source: Central Statistics Office.
Note: The y-axis on the LHS scale has a very low range of values.

Distinguishing between public and private pay, the public sector experienced an annual increase of 2.5 per cent to €956.48 per week while private sector employees experienced an annual increase of 3 per cent to €682.81 per week. For the public sector, average weekly earnings ranged from €838.39 among regional bodies to €1,363.13 per week for the Garda Síochána in Q2 2018. Average private sector earnings ranged from €356.29 per week in accommodation and food service activities to €1,164.51 per week in financial and insurance activities. Irregular earnings and bonuses, which are those that are not paid regularly at each pay period, appear to have converged for the public and private sectors in recent years. For high-earning industries such as ICT or finance, the gap has also narrowed considerably relative to last year.

FIGURE 48 WEEKLY IRREGULAR EARNINGS, FOUR-QUARTER ROLLING AVERAGE (€)



Source: Central Statistics Office

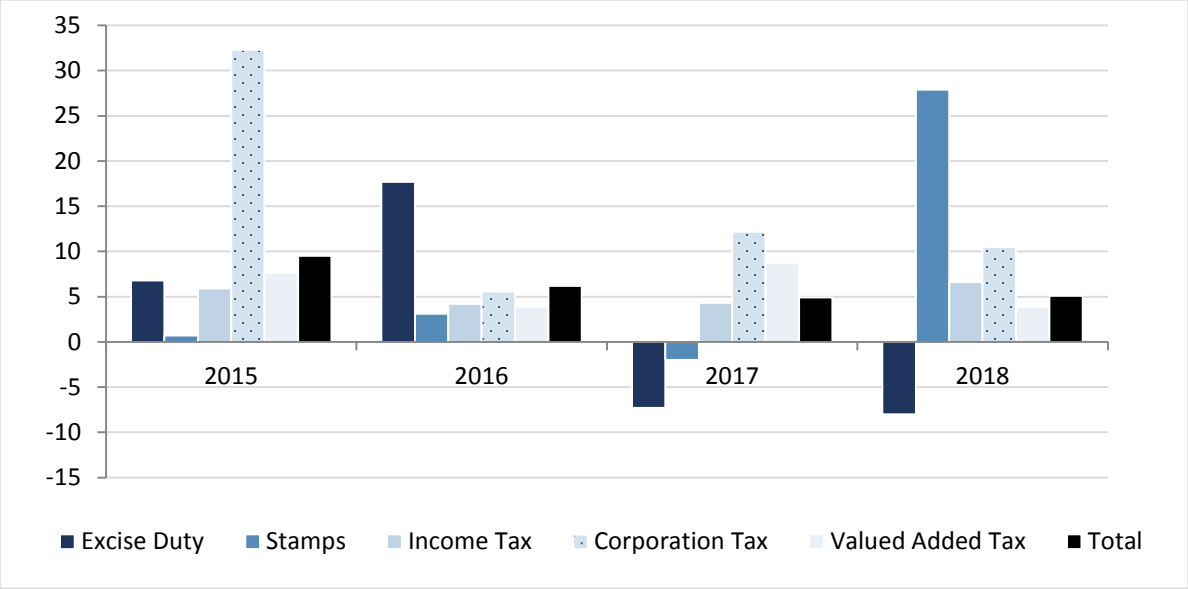
Labour market forecasts

As the Irish economy approaches full employment, earnings growth has increased. With economic activity forecast to be growing at a lower, more stable rate over the next two years, the unemployment rate is expected to average 5.7 per cent through 2018 and 5.0 per cent in 2019. Employment is set to exceed 2.28 million by the end of 2018, increasing to 2.35 million by the end of 2019. While inflows of migrant workers should help maintain competitiveness in the domestic market, the upward trend in the vacancy rate suggests labour supply has thus far been persistently outstripped by demand. As a result, nominal earnings are expected to continue to rise, increasing by 2.8 per cent in 2018, and 3.4 per cent in 2019.

PUBLIC FINANCES

For the year to August, annual taxation receipts increased by 5.1 per cent. Most taxation items registered strong growth with the exception of excise duty and customs. Figure 49 illustrates the annual changes in taxation returns for the last four years for the main tax categories as well as the overall total amount.

FIGURE 49 ANNUAL CHANGES IN MAJOR TAX SUB-COMPONENTS (%)



Source: QEC calculations.

Taxation receipts closely related to consumption such as VAT continue to increase at a significant rate (3.9 per cent) as do pay related social insurance (PRSI) receipts. The latter witnessed an annual increase of 4.6 per cent in the year to August.

With Budget 2019 due next month it is timely to look at trends in Government expenditure for the year to date.

TABLE 7 ACTUAL AND PROFILE CURRENT AND CAPITAL EXPENDITURE FOR THE YEAR TO JULY

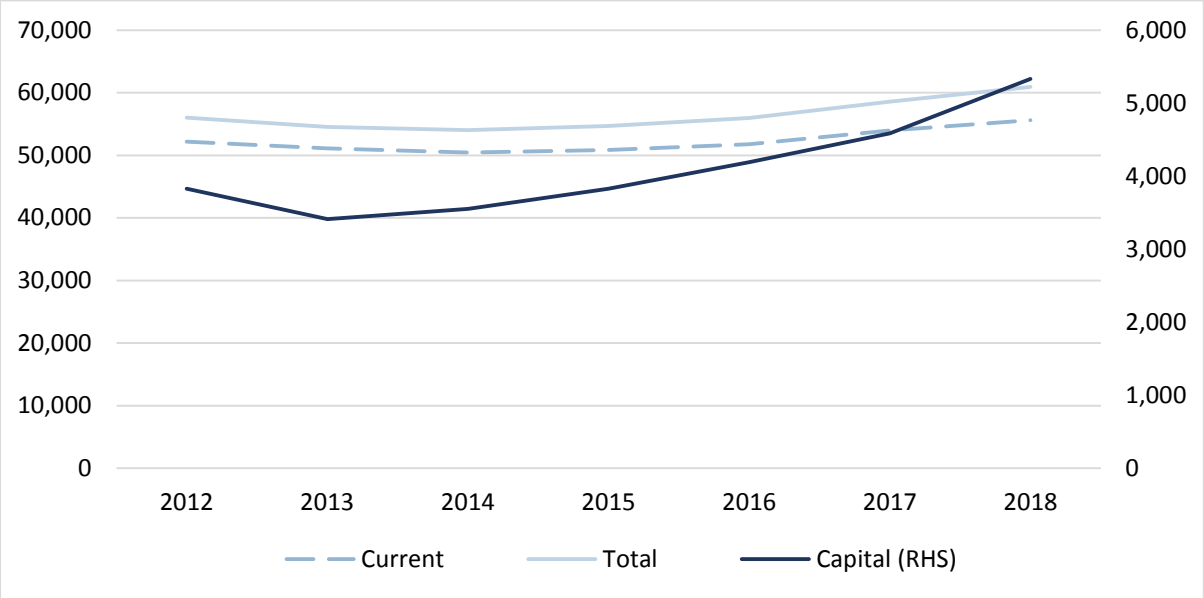
Category	Actual (€million)	Profile (€million)	Difference (%)
Total Current	36,770	36,561	0.0
Social Protection	13,419	13,417	0.0
Health	10,271	9,958	2.0
Education	5,940	5,890	1.0
Other	7,140	7,296	-2.0
Total Capital	2,679	3,041	-8.0
Transport	580	631	-5.0
Education	431	465	-9.0
Housing	671	846	-8.0
Other	997	1,099	-9.0
Total	39,449	39,602	-8.0

Source: QEC calculations.

Overall Government expenditure is running as envisaged at the outset of the year with total actual expenditure identical to the total profile or forecast level. However, within the different categories it is evident that much of the capital expenditure is less than the profile level. On the current side, actual expenditure on health and education is marginally greater than that forecast for the year to August.

In Figure 50 we plot Gross current, capital and total voted expenditure over the period 2012 to 2018.[24] From the chart, it is evident that the major increase in expenditure over the past six years has been in capital as opposed to current expenditure.

FIGURE 50 CURRENT, CAPITAL AND TOTAL VOTED EXPENDITURE: 2012-2018 (€MILLION)

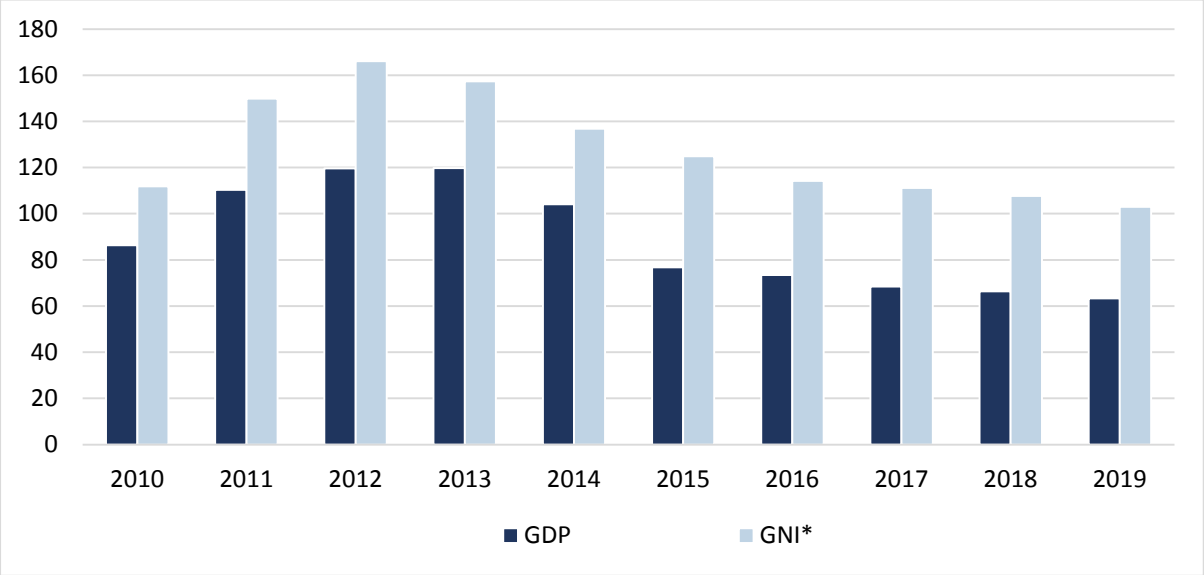


Source: QEC calculations.

Figure 51 presents the debt-to-output ratio for both GDP and the new GNI* measure. While both trends indicate that Ireland's debt sustainability is clearly improving, a significant difference is evident between the GDP and GNI* output denominators. Using the GNI* measure, it is clear that the ratio is still above 100. This highlights the point made in the Monetary and Financial section that the Irish economy is still quite vulnerable to any significant changes in the financing costs of sovereign debt.

[24] We assume that actual = profile in 2018 for both capital and current expenditure.

FIGURE 51 DEBT-TO-GDP AND GNI*RATIOS (%)



Source: QEC calculations.

General Assessment

Most key domestic economic indicators for 2018 suggest the Irish economy looks set to register another strong performance in the present year. While the pace of decline in unemployment has slowed to some degree, taxation receipts across all the major headings indicate that economic activity is still increasing significantly. The relatively strong performance of the global economy also ensures that external demand for goods and services produced in Ireland has increased somewhat in 2018.

While the Irish economy continues to enjoy the largest growth rate in the Euro Area, differences persist between the headline rate of activity suggested by GDP and the underlying growth rate of the domestic economy. In this *Commentary* we have revised upwards our growth rate of GDP from 4.7 per cent to 8.9 per cent in 2018. GDP in 2019 is also now expected to grow marginally quicker than previously expected.

However, it is important to understand the reasons for this revision which are twofold. First, a significant reduction in the rate of imports of highly valued research and technology related services amongst a select few multinational firms has caused overall import levels in the Irish economy to actually decline over the past year. This, in turn, causes GDP figures to increase more than expected. Given these data, we have revised down our import forecasts for 2018 which in turn raises our overall GDP forecast substantially.

Second, the underlying rate of economic activity, as captured by consumption and modified investment, appears to be growing at a faster pace in 2018 than previously expected. In particular, the growth in domestic consumption for the year to date is particularly strong.

This dichotomy between the headline growth rate and underlying trends highlights the difficulties in discerning what is actually going on in the real Irish economy. Recent data from the CSO do provide some more information in that regard. Gross valued added (GVA) is separated between the multinational and other sectors of the economy; the data reveal that the indigenous sector of the Irish economy grew by 4.3 per cent in 2017 and 5.4 per cent in 2016. This is at variance with the view that almost all of the growth in the Irish economy is coming from the multinational sector. The data also appear to indicate that the

recovery in the indigenous sector peaked in 2015 when a growth rate of 8.4 per cent was observed.

The single biggest threat to the medium-term outlook of the domestic economy is the nature of the UK exit from the European Union. The forthcoming summit of European leaders next month in October may bring a greater degree of clarity on the nature of the British withdrawal, however it is prudent to assume that a no-deal exit is at this stage a real possibility.

The possibility of a no-deal Brexit has important consequences for the present budgetary process. On the one hand as the economy is performing very strongly there are legitimate concerns that it may soon overheat, in which case a contractionary budgetary policy may well be in order as has been recently argued.[25] For a small open economy like Ireland which is carrying a voluminous public (and private) debt load, policies to build up financial buffers and reduce indebtedness are warranted. In particular, at this point in the economic cycle, budgetary surpluses would be most desirable and allow a safety net to develop. Indeed, Ireland is one of the only small open economies not to be running a surplus in the EU at present.

However, at present, there are several significant downside risks to the Irish economy to suggest a running a neutral budget may be preferable. First, there are key infrastructural bottlenecks in Ireland such as in the public housing area that require significant investment by the State. Undertaking such investment can add to the productive capacity of the economy, and reduce the increase in housing costs which are currently posing a threat to domestic competitiveness.

Detailed research evidence on the structure and composition of households facing high housing costs has recently been released by Corrigan et al. (2018).[26] They find the most persistent housing affordability difficulties are for low income urban households renting in the private market, who may find it difficult to access home ownership at current market prices. Furthermore, additional research by McQuinn (2018)[27] on the housing market, updating earlier work, suggests that housing demand is set to increase over the coming years resulting in continued upward pressure on prices. This is likely to exacerbate the affordability challenge for the aforementioned households. To address this issue,

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25 IFAC pre-budget statement and statement by Governor of Central Bank of Ireland at McGill Summer School.

26 Corrigan E., D. Foley, K. McQuinn, C. O'Toole and R. Slaymaker (2018). 'Exploring Affordability in the Irish Housing Market' ESRI Working Paper No. 593, June. This research is from the first year of a three-year research programme between the ESRI and the Department of Housing, Planning and Local Government.

27 McQuinn K. (2018). "Macroeconomic developments in the Irish housing market", Economic and Social Research Institute (ESRI) 'Exploring developments in the Irish housing and mortgage market' conference, ESRI, June.

policies to increase housing supply and provide social and affordable housing are critical and provide a case for public capital investment. The recently announced Land Development Agency may help to deliver such supply by addressing issues such as the relatively high cost of development land.

The second factor which suggests a non-contractionary budget may be preferable is the possibility next year of a no-deal Brexit. If such an outcome occurs then there is a possibility that in Q1 or Q2 2019, the Irish economy could face a significant, and immediate, adverse economic shock. In such a scenario, it is fair to say that the full downside risks for the economy are exceptionally difficult to envisage.

Notwithstanding these points, as noted in the previous *Commentary*, given the commitments made concerning future Government investment in infrastructure, a neutral budget would leave very little scope for reducing the overall burden of taxation in the economy. As the sovereign debt is still very high, particularly when compared with GNI* as the output denominator, it is very difficult to justify reductions in taxation when the Government balance is still in deficit.

The other major external risk to the Irish economy is the increased protectionism in trade policy observed between the United States and China. The scale of tariffs now being imposed, particularly on Chinese imports into the United States, is almost certain to have a negative impact on global trade. Given the small open nature of the domestic economy, this is likely to reduce the contribution to growth from the trade balance over the next 18 months. Allied to the Brexit issue, increased global trade tension highlights the uncertain external outlook for the Irish economy in 2019. A further concern for Irish firms exporting to the UK is the continued weakness of Sterling vis-à-vis the Euro; the exchange rate is currently at its highest (lowest) since the inception of the Euro in 1999.

Previous *Commentaries* have highlighted the importance of considering both financial sector developments as well as fiscal issues in assessing the possibility of overheating in the Irish economy. To that end, in the monetary and financial section of the *Commentary* a new indicator is compiled which tracks the role of lending by foreign financial institutions into the Irish economy. The indicator is a ratio of total foreign bank lending in the Irish economy to GDP. At present, the indicator suggests that foreign lending to the domestic economy, as a proportion of underlying economic activity, is back at pre-2002 rates.

Given the difficulties assessing the underlying rate of growth in the Irish economy, new information about Irish SMEs is particularly welcome. In a special

article to the *Commentary*, Gargan et al. (2018) use unique survey data compiled by the Department of Finance Credit Demand Survey to profile the investment decisions of Irish SMEs across the size of the firm, its age group and its sector. The authors find that two in every three Irish SMEs invested in their staff, one-in-two invested in fixed assets and less than one-in-ten invested in intangible assets in 2016. Furthermore, with high levels of liquid assets on their balance sheet, and one-in-five firms indicating a capital gap, the findings suggest that any perceived sluggishness in borrowing or investment appetite could potentially be demand-side in orientation. From a macroeconomic perspective, this evidence indicates that Irish enterprises should have scope to increase investment if they so wished. If this materialises, a further boost to investment may be on the horizon.

DETAILED FORECAST TABLES

FORECAST TABLE A1 EXPORTS OF GOODS AND SERVICES

	2016	% change in 2017		2017	% change in 2018		2018	% change in 2019		2019
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	193.0	-0.2	1.8	192.6	11.1	10.0	213.9	5.9	3.3	226.9
Tourism	4.7	6.1	4.8	5.0	3.0	3.0	5.1	3.2	3.2	5.3
Other Services	130.4	18.7	16.6	154.7	5.7	5.0	163.6	8.7	7.8	177.8
Exports of Goods and Services	328.2	7.4	7.8	352.6	8.6	7.5	382.5	7.0	5.2	409.9
FISM Adjustment	0.0			0.0			-0.5			-0.5
Adjusted Exports	328.2	7.4	7.8	352.6	8.5	7.5	382.5	7.0	5.2	409.4

FORECAST TABLE A2 INVESTMENT

	2016	% change in 2017		2017	% change in 2018		2018	% change in 2019		2019
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Housing	4.2	28.5	22.6	5.4	27.6	22.5	6.9	23.2	24.2	8.5
Other Building	11.3	26.2	18.8	14.3	6.0	15.0	16.4	10.0	11.0	19.2
Transfer Costs	1.1	4.4	-4.2	1.2	9.2	3.0	1.3	9.2	3.0	1.4
Building and Construction	17.7	23.0	16.0	21.8	17.7	11.9	25.6	18.3	14.2	30.3
Machinery and Equipment	79.9	-40.9	-41.4	47.2	-12.5	-14.4	41.3	9.6	7.3	45.3
Total Investment	97.6	-29.3	-31.0	69.0	-3.0	-6.3	67.0	12.9	9.8	75.6

FORECAST TABLE A3 PERSONAL INCOME

	2016	% change in 2017		2017	% change in 2018		2018	% change in 2019		2019
	€ bn	%	€ bn	€ bn	%	€ bn	€ bn	%	€ bn	€ bn
Agriculture, etc.	3.3	27.0	0.9	4.2	2.5	0.1	4.3	1.4	0.1	4.3
Non-Agricultural Wages	81.8	4.7	3.9	85.7	5.8	5.0	90.7	5.7	5.2	95.8
Other Non-Agricultural Income	15.1	31.5	4.8	19.9	12.8	2.5	22.4	4.8	1.1	23.5
Total Income Received	100.2	9.5	9.5	109.7	6.9	7.6	117.4	5.4	6.3	123.6
Current Transfers	22.6	-0.5	-0.1	22.5	4.3	1.0	23.5	1.9	0.4	23.9
Gross Personal Income	122.8	7.7	9.4	132.2	6.5	8.6	140.8	4.8	6.7	147.5
Direct Personal Taxes	29.4	4.2	1.2	30.6	3.8	1.2	31.8	3.4	1.1	32.9
Personal Disposable Income	97.3	5.0	4.8	102.2	7.3	7.5	109.6	5.2	5.7	115.3
Consumption	91.2	2.9	2.6	93.8	3.9	3.7	97.5	3.5	3.4	101.0
Personal Savings	7.7	32.5	2.5	10.2	18.3	1.9	12.1	18.5	2.2	14.3
Savings Ratio	7.9			10.0			11.0			12.4
Average Personal Tax Rate	16.9			16.8			16.0			14.6

FORECAST TABLE A4 IMPORTS OF GOODS AND SERVICES

	2016	% change in 2017		2017	% change in 2018		2018	% change in 2019		2019
	€ bn	Value	Volume	€ bn	Value	Volume	€ bn	Value	Volume	€ bn
Merchandise	87.0	-2.2	-5.5	85.2	7.2	5.0	91.4	6.1	7.2	97.0
Tourism	5.6	3.4	2.4	5.8	4.7	3.2	6.1	5.4	3.8	6.4
Other Services	193.2	-10.8	-11.7	172.2	-2.0	-3.4	168.9	6.9	5.5	180.5
Imports of Goods and Services	285.9	-7.9	-9.4	263.3	1.2	-0.7	266.3	6.6	6.0	283.9
FISM Adjustment	0.0			0.0			-0.6			-0.6
Adjusted Imports	285.9	-7.9	-9.4	263.3	1.0	-0.7	265.8	6.6	6.0	283.3

FORECAST TABLE A5 BALANCE OF PAYMENTS

	2016	2017	2018	2019
	€ bn	€ bn	€ bn	€ bn
Exports of Goods and Services	328.2	352.6	382.5	409.4
Imports of Goods and Services	285.9	263.3	265.8	283.3
Net Factor Payments	-49.9	-59.8	-70.9	-74.8
Net Transfers	-3.8	-4.6	-5.1	-5.7
Balance on Current Account	-11.4	24.9	40.6	45.6
As a % of GNP	-5.1	10.7	16.0	16.6

FORECAST TABLE A6 EMPLOYMENT AND UNEMPLOYMENT, ANNUAL AVERAGE

	2016	2017	2018	2019
	'000	'000	'000	'000
Agriculture	112.3	110.4	107.5	105.0
Industry	394.2	412.0	422.9	429.6
Of which: Construction	118.6	128.7	143.4	147.3
Services	1,618.7	1,664.2	1,717.8	1,747.7
Total at Work	2,132.3	2,194.2	2,257.4	2,313.3
Unemployed	194.9	157.9	135.6	123.4
Labour Force	2,327.1	2,352.0	2,393.0	2,436.7
Unemployment Rate, %	8.4	6.7	5.7	5.0

Special Articles

EXPLORING INVESTMENT PATTERNS FOR IRISH SMES: NEW SURVEY EVIDENCE[1]

Eric Gargan, Martina Lawless, Maria Martinez-Cillero, Conor O'Toole*

ABSTRACT

An empirical profile of SME investment in Ireland is critical to understanding the growth possibilities and productive capacity of Irish indigenous enterprises. However little is known about SME investment activity outside the more aggregate information. This paper uses new survey evidence compiled as part of the Department of Finance SME Credit Demand Survey to profile the types of assets SMEs are investing in, how firms are financing these investments and what barriers firms face to investment. We provide a detailed exploration of the trends across firms looking at different size classes, age groups, exporting status and sectors. A number of findings emerge. We find that two in every three SMEs invested in their staff; one-in-two invested in fixed assets; and less than one-in-ten invested in intangible assets in 2016. SMEs were in general satisfied with their investment levels or their current capacity with only one-in-five facing a capital gap. For those with perceived insufficient investment, a lack of internal funds, rather than access to external finance, was identified as the main reason. Finally, SMEs reported having significant liquidity levels in 2016. These findings suggest that any perceived sluggishness in borrowing or investment appetite could potentially be demand-side in orientation.

1. INTRODUCTION

Understanding the determinants of investment activity for domestic Irish SMEs is critical in terms of assessing their long-term productive capacity. To have adequate scope to grow and develop, firms need to continually invest in fixed and other assets to boost output. Indeed, a major determinant of productivity for firms is the growth in capital assets at their disposal.

Following the onset of the financial crisis, aggregate investment activity in the Irish economy dropped dramatically. While much of the retrenchment in capital

[1] This research was funded under the Department of Finance/ESRI research programme on the macoeconomy, taxation and banking.

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formation was accounted for by the adjustment in building and construction, investment in machinery and equipment and other non-construction assets also fell. At a domestic level, investment activity amongst SMEs also declined. Gerlach-Kristen et al. (2015) show that the share of SMEs investing in fixed assets declined from 55 per cent in 2005 to under 30 per cent in 2013. This fall was even more pronounced for micro-sized enterprises.

While undoubtedly the deterioration in the business climate, through poorer fundamentals, would have led firms to pull back investment, a number of research papers have highlighted the negative impact of the banking crisis and credit boom on investment levels. Gerlach-Kristen et al. (2015) show that SMEs' investment was negatively affected by credit constraints following the banking collapse. Lawless et al. (2015) show that debt overhang from the boom phase also negatively impacted investment activity amongst SMEs. Lawless et al. (2013) show that investment financing has shifted to the use of internal funds with a major reduction in the usage of bank credit. SME financing has been a popular topic of research in empirical literature. The different nature of financing of large and small companies has been well established in the literature (Rajan and Zingales, 1995; Berger and Udell, 1998), largely due to information opacity. In terms of external finance, small firms rely largely on private equity and debt markets. However due to information asymmetries between firm managers and lending institutions, access to external credit for small firms is highly reliant on the availability of collateral and liquidity.

As the economy has recovered, some of the credit market drags on investment have abated. Carroll et al. (2016) document a marked pick-up in investment for SMEs following the improvements in the domestic economy in 2014 and 2015. However the rapid growth domestically in recent years, and the improvements in trading conditions for firms, have not seen a substantial increase in SME investment activity**.** Lawless et al. (2018) test the extent to which SME investment in Ireland is explained by economic fundamentals and find that, in 2016, firms were underinvesting by approximately 30 per cent. A portion of this gap, approximately 20 per cent is explained by factors relating to financial market issues (indebtedness, interest rates, credit rejections, etc.).

However, given data limitations, a number of unanswered questions remain. Three specific issues are of particular pertinence. First, which type of assets are SMEs investing in, and is investment activity relatively larger when scaled against the level of existing total assets (data which have been missing to date)? Second, do firms themselves consider their investment activity to be optimal and what are the barriers to investment if not? Third, how much savings do firms hold on their balance sheets and how does this link to investment financing? Shedding light on

these issues can provide further insight into what is happening with SME investment in Ireland.

To address these specific issues, a special 'Investment activity and company assets' module was appended to the regular Department of Finance SME Credit Demand Survey (CDS) to capture data on the aforementioned information gaps. The new module captures new information on the types of assets firms are investing in, the barriers they face to investment, and information on how they finance that investment. More detailed insights of this new information are provided in the Data Overview section.

This article provides a first insight into the new data and attempts to address the questions raised. A number of important findings emerge. Half of SMEs in the sample invested in fixed assets in 2016, however only 7 per cent of firms invested in intangibles. Moreover, both the investment level and rate were between 4.5 and 4.8 times higher for fixed assets than for intangibles. Although a significant number of firms invested in staff (66 per cent), the mean and median level of investment made by these companies are the lowest relative to all types of investment. More than two-thirds of SMEs in the sample reported that they were satisfied with their investment levels or with their current capacity. In terms of barriers to investment, the lack of internal funds was identified as the main reason behind the lack of, or insufficient, investment. Finally, the data suggest that SMEs had remarkably high liquidity levels, which might be linked to the low demand for external funding sources for investment.

2. DATA OVERVIEW

The Department of Finance SME CDS contains firm-level data on a random sample of Irish SMEs, and is carried out on a biannual basis. It was designed to include a good representation of micro, small and medium-sized firms and a proportional representation of selected key sectors of the economy.

The 2016 CDS included a new module which contained a series of questions specifically asking about firms' investment activity and assets. In addition, the new module in the CDS also contained important questions regarding investment financing sources and barriers.[2] Past data did not provide any insights on key issues such as the types of fixed assets firms were investing in, or staff and intangibles investment patterns. Information regarding firms' value of total assets was also absent, which prevented an exploration of the different investment rates across SMEs. As part of this module, firms were asked to provide a numeric

[2] A full list of variables available in the new module is provided in Appendix I.

figure of the value of their total assets, as well as declaring the percentages of assets that were in fixed or liquid form.[3] This allowed us to also explore the liquidity of Irish SMEs in 2016. Information was also requested on the value of turnover, profits, investment per asset or outstanding debt, and the number of employees and the value of investment in them.

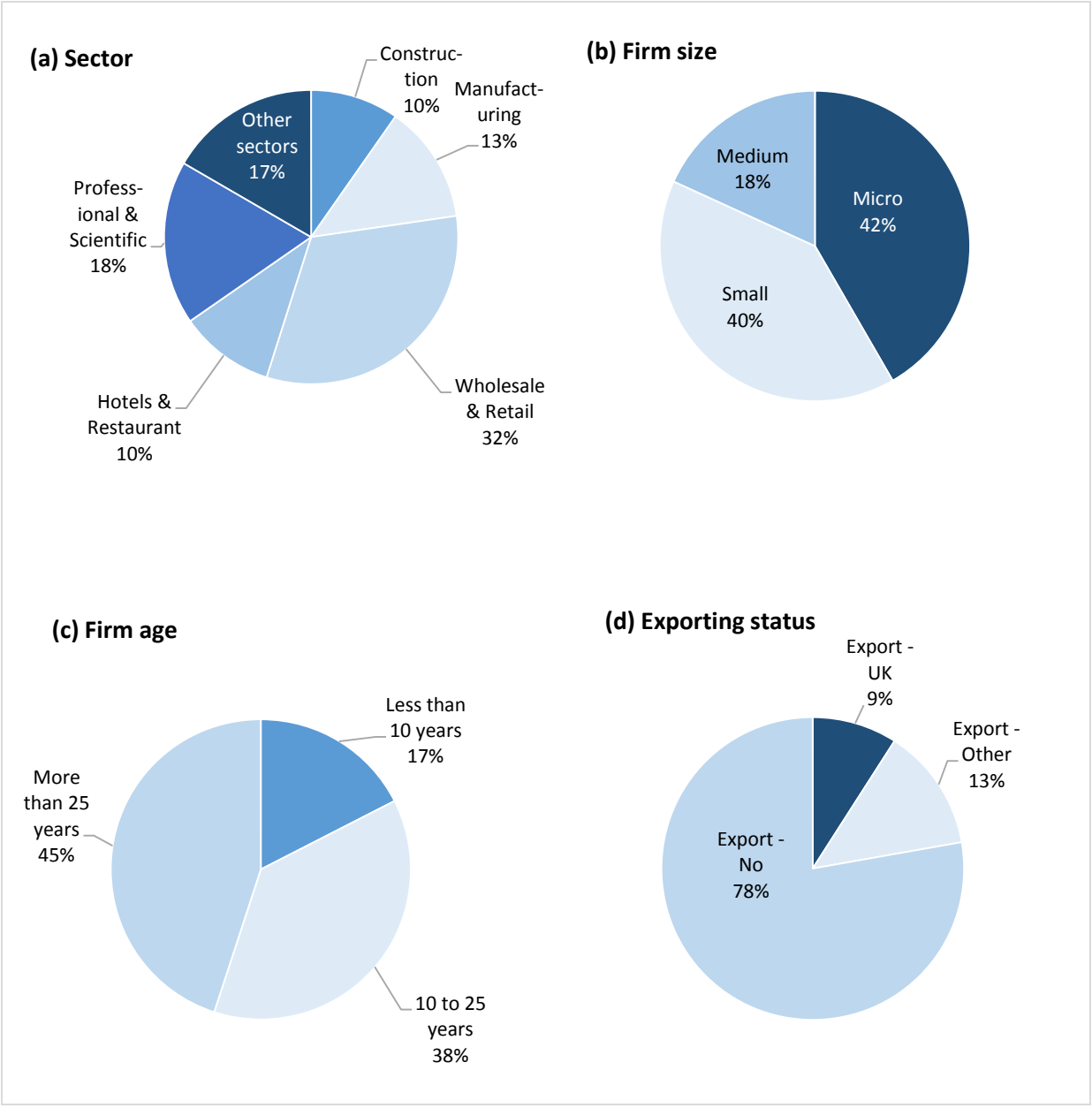
Some of the value variables obtained through this set of questions (i.e. debt, turnover or value of total assets) had a significant share of missing observations. For the case of total assets, about 50 per cent of firms did not report a value. However, as an alternative to providing the value of total assets, firms were given the option to state this information through pre-defined ranges of values. For firms which provided a range, the value of total assets was generated using multiple imputations.[4] After this procedure, the percentage of firms with a missing total assets value was reduced to about 18 per cent.

The figures below report the percentage of observations in selected firm categories, to provide an overview of the composition of the sample used.

[3] Liquid assets include cash, stocks or other liquid assets such as accounts receivable.

[4] An OLS regression was performed in each sub-sample of firms classified in each range, and range-specific predicted values were then calculated for each firm. If the predicted value was within the range, it was assigned as the value of total assets for that firm. If the value was not within range the value was left as missing.

FIGURE 1 DATA OVERVIEW



Source: ESRI.

Most SMEs included in the sample operated in the Wholesale and Retail sector, followed by the Professional and Scientific sector. The sample includes a large proportion of micro and small sized firms, as opposed to medium sized firms. According to 2015 CSO data, the majority of active enterprises in Ireland fall into the micro firm category, while small and medium firms represent 6.4 and 1.1 per cent respectively (CSO, 2017b). Therefore, although medium and small firms are overrepresented in the sample, which is a common occurrence in SMEs microdata, we also include a very high proportion of micro firms. The data include a small share of firms with less than ten years of operation, with almost half of the firms operating for over 25 years. Although the sample included a number of companies which had been in business for less than two years, these companies usually are not listed in Company Registration Office records and therefore are

not in the database on which sampling is based. For this reason, this analysis excludes a certain cohort of very young rapidly growing firms for which credit constraints may be quite a significant issue. Finally, just over three-quarters of firms included did not export their products outside Ireland.

As is standard in treating extreme observations in microdata studies, outliers have been removed from the sample, and were defined as observations situated above and below the 99 and 1 percentiles respectively. After cleaning the data, the total number of observations in the sample was 1,419. All statistics presented in the tables and figures that follow are weighted using probability weights provided in the dataset.

3. PROFILING INVESTMENT ACROSS FIRMS

This section provides an overview of the extent to which Irish SMEs are investing in assets and, if investing, explores what type of assets are being purchased. It also provides information regarding the size of the investment made in each asset class, and the scale of the investment relative to the firm size. For this last purpose, investment rates, defined as the percentage of the value of investment relative to the value of total assets, are computed.

Column 1 in Table 1 displays the percentage of firms which reported investing in 2016. Disaggregated information on investment activities by type of asset is also provided, which is a novelty of the 2016 data. Overall, just over 80 per cent of firms undertook some form of investment activity in either fixed assets, intangible assets or staff. Roughly 50 per cent of firms invested in fixed assets in 2016; however, disparities across different types of assets emerge. Most firms invested in machinery, followed by transport, while only 14.6 per cent of firms invested in larger types of assets such as buildings. The extent to which Irish SMEs are investing in intangible assets (such as new production processes, procedures, patents, research and development, branding, etc.) is of great interest. In contrast with the importance of intangibles suggested by the National Accounts (CSO, 2017a), merely 6.9 per cent of SMEs reported undertaking this type of investment. Finally, a large share of firms, 66.4 per cent, invested in staff in 2016.

The average size of investment by asset type is also reported in Table 1.[5] The mean and median investment levels are reported in Columns 2 and 3, respectively. Due to the skewed distribution of investment, which is displayed in Figure 2, the mean and median investments are quite different. The largest mean investment levels correspond unsurprisingly to buildings, followed by machinery

[5] Note that the statistics of investment levels and rates only refer to investing firms, and not the total sample.

and transport. In comparison to fixed assets, the investment level was low for intangible assets and particularly for staff.

TABLE 1 INVESTMENT BY TYPE OF ASSET

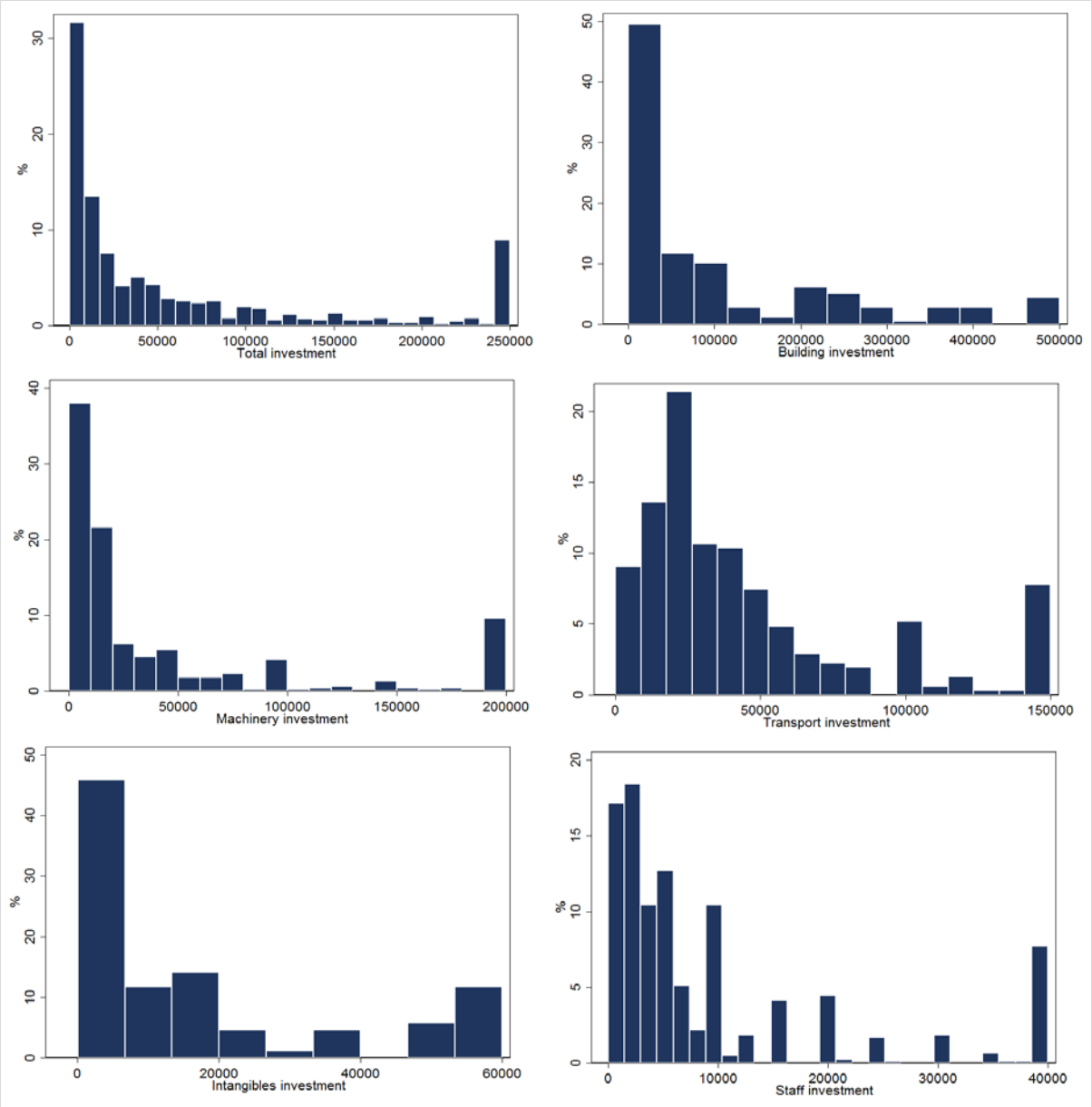
	All firms	Investing firms		
	%	Mean inv.	Median inv.	Inv. rate
a. Total investment	*80.30*	*79,243*	*22,000*	*0.19*
b. Fixed assets	*50.21*	*103,813*	*45,000*	*0.24*
Buildings	14.60	123,584	40,000	0.14
Transport	25.56	51,854	30,000	0.17
Machinery	35.75	58,365	20,000	0.10
c. Intangible assets	*6.92*	*21,966*	*10,000*	*0.05*
d. Staff	*66.41*	*11,463*	*5,000*	*0.02*

Source: ESRI.

Mean investment rates are also displayed in the last column of Table 1. They were calculated as the ratio of the level of investment undertaken in 2016 by each firm to their level of total assets in 2015.[6] This measure facilitates a comparison of investment across firms relative to their size, as conclusions taken from investment level statistics can be affected by larger firms making larger investments. In contrast with the average investment level, the average rate is the highest for transport assets, indicating that investment relative to firm size was higher for this type of asset. Again, the distribution of the investment rates is also quite skewed to the left, as shown in Figure 3. This suggests that most investing firms did not invest large amounts relative to their size, regardless of the type of asset.

6 The level of total assets in 2015 is obtained by subtracting the 2016 investment from the 2016 value of total assets. Recall, the value of total assets in 2016 for some observations is imputed (see Data Overview section).

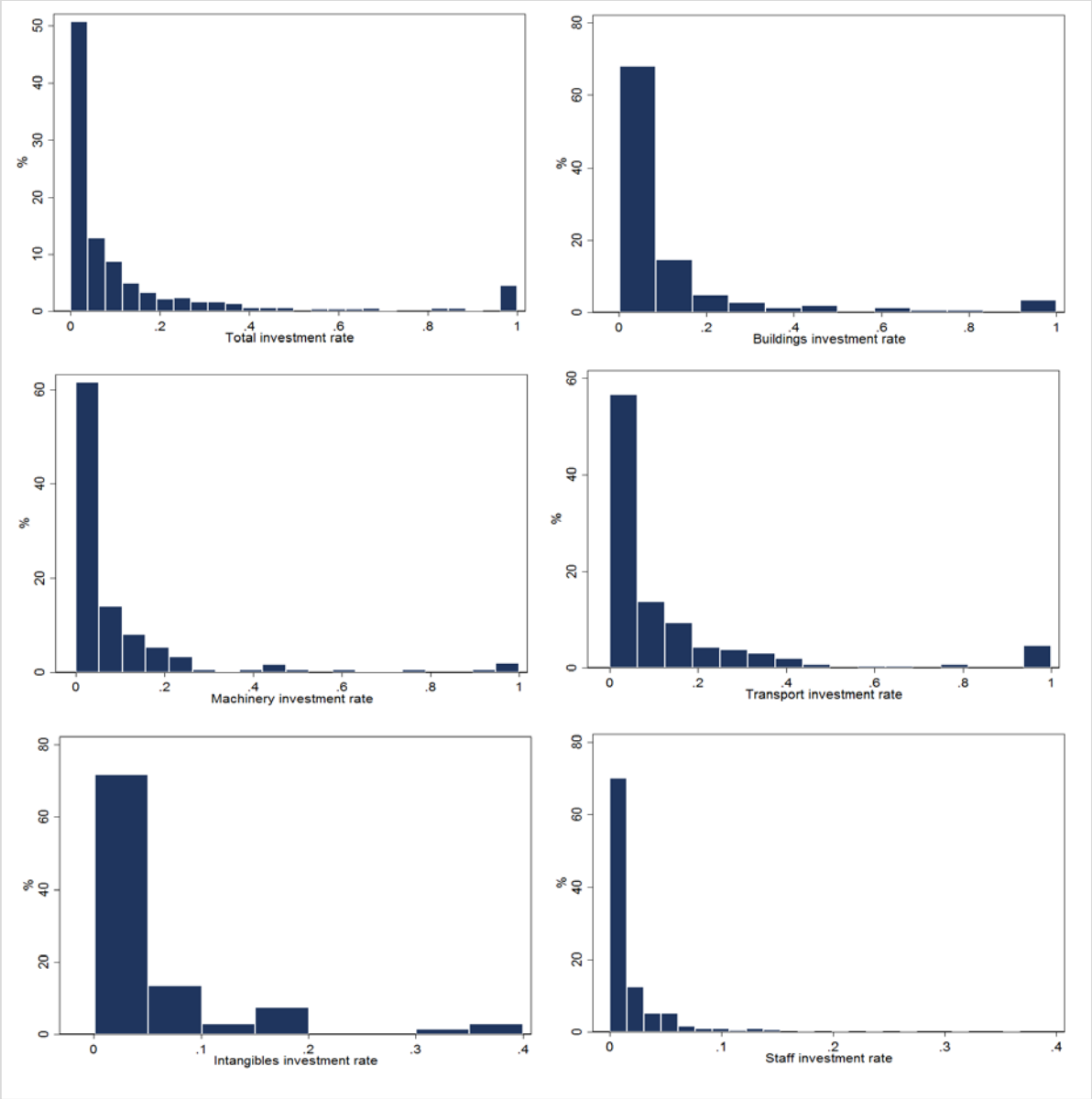
FIGURE 2 HISTOGRAMS – INVESTMENT LEVEL BY ASSET



Source: ESRI.

Note: Upper values of each distribution have been capped at the level displayed in each histogram. Total investment includes investment in fixed assets, intangibles and staff.

FIGURE 3 HISTOGRAMS – INVESTMENT RATE BY ASSET



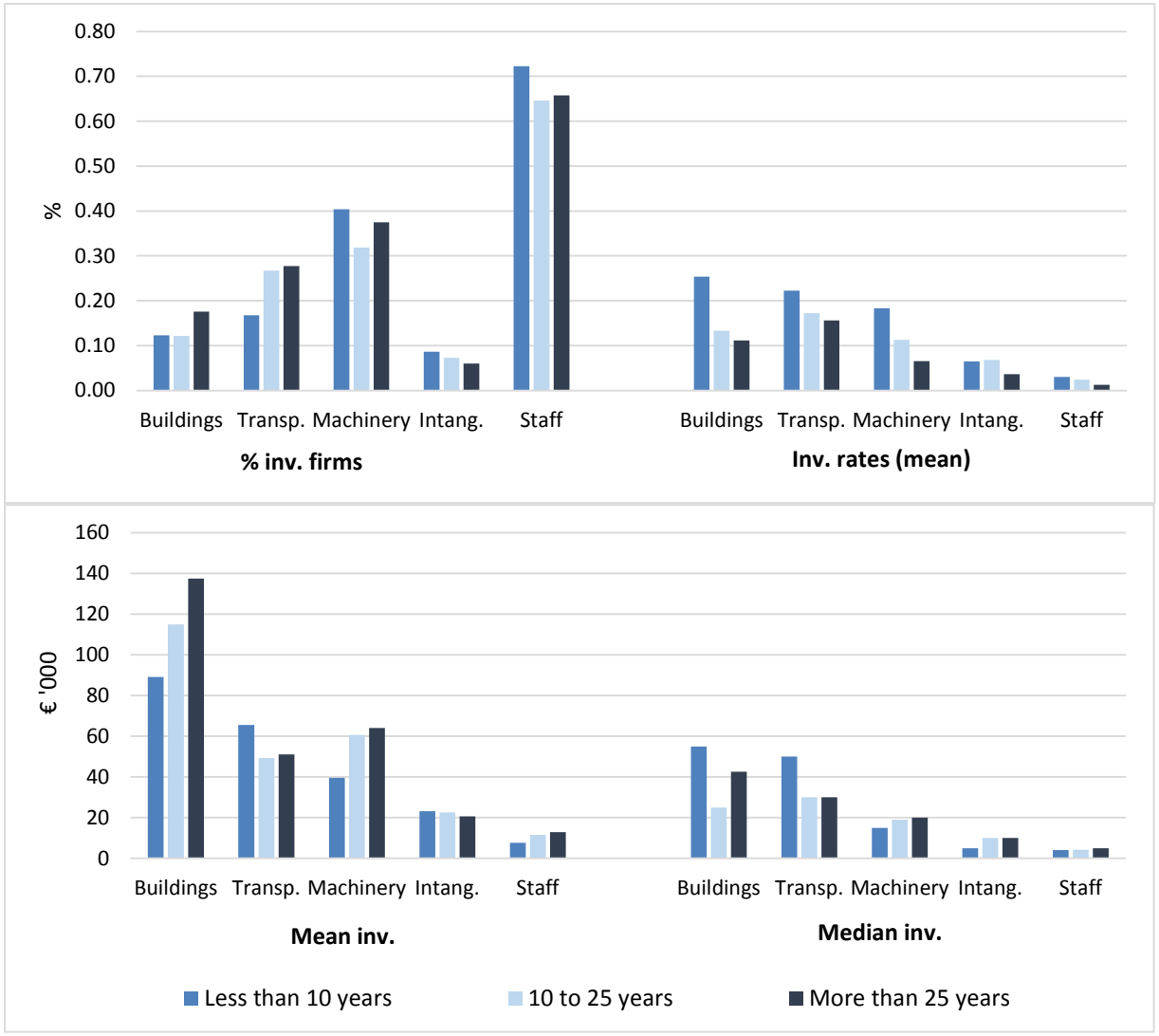
Source: ESRI.
Note: Ratios have been capped at 1, except for intangibles and staff investment. Total investment includes investment in fixed assets, intangibles and staff.

Following the description of the general investment patterns of Irish SMEs, we briefly explore whether heterogeneity in terms of firm characteristics affects the incidence and level of investment. The graphs provided in Figures 4 to 7 display the percentage of investing firms, mean investment rates, and mean and median investment levels[7] by selected firm categories. These are defined in terms of firm age,[8] size,[9] exporting status[10] and sectors.

7 The percentages of investing firms and the investment level and rates by category on which graphs in Figures 4 to 7 are based are provided in Tables A.2a and A.2b in Appendix II.

8 According to the number of years a firm has been operating.

FIGURE 4 INVESTMENT BY TYPE OF ASSET AND AGE CATEGORY



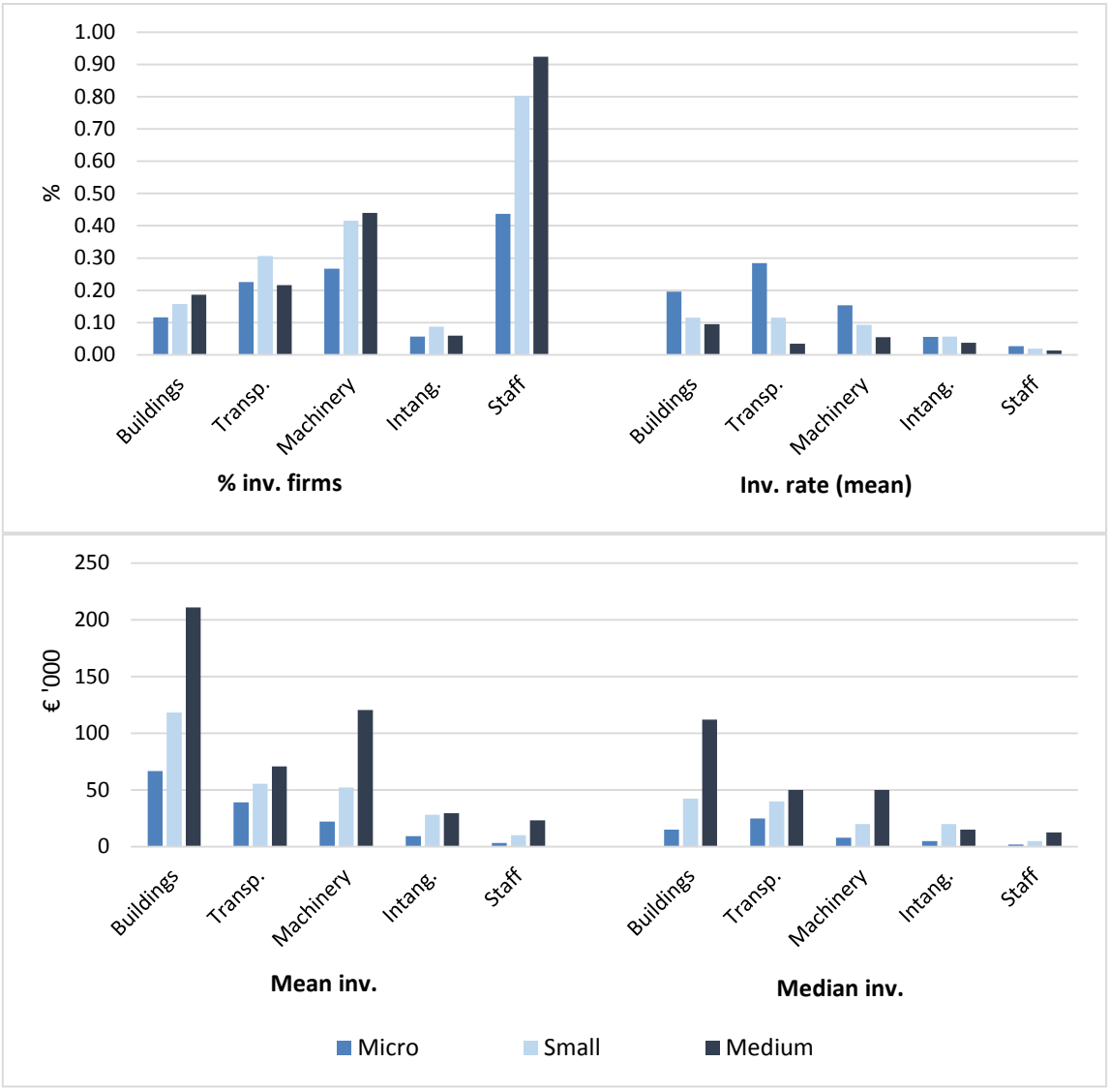
Source: ESRI.

A higher percentage of younger firms invested in machinery, intangibles and staff while more mature firms invested in buildings and transport assets. However, the average investment level appears to be higher for older firms across assets, except for transport and intangibles. After accounting for differences in firm size, the mean investment rates show younger firms performing higher investment in all types of assets and staff. This finding is consistent with the firm lifecycle whereby large investments (relative to size) are made early in firms' existence and decline in relative magnitude as firms age.

[9] Defined by the number of employees in each firm. The micro category includes firms that employ between one and nine people, small firms have between ten and 49 employees, and medium firms employ between 50 and 249 people.

[10] Three categories are defined, according to the percentage of output exported to different destinations. One category includes firms which export only to UK markets, the second one includes firms which export mostly to countries other than the UK (although some UK exports are present in this category, they are of much smaller importance). Finally the third category includes firms which do not export production.

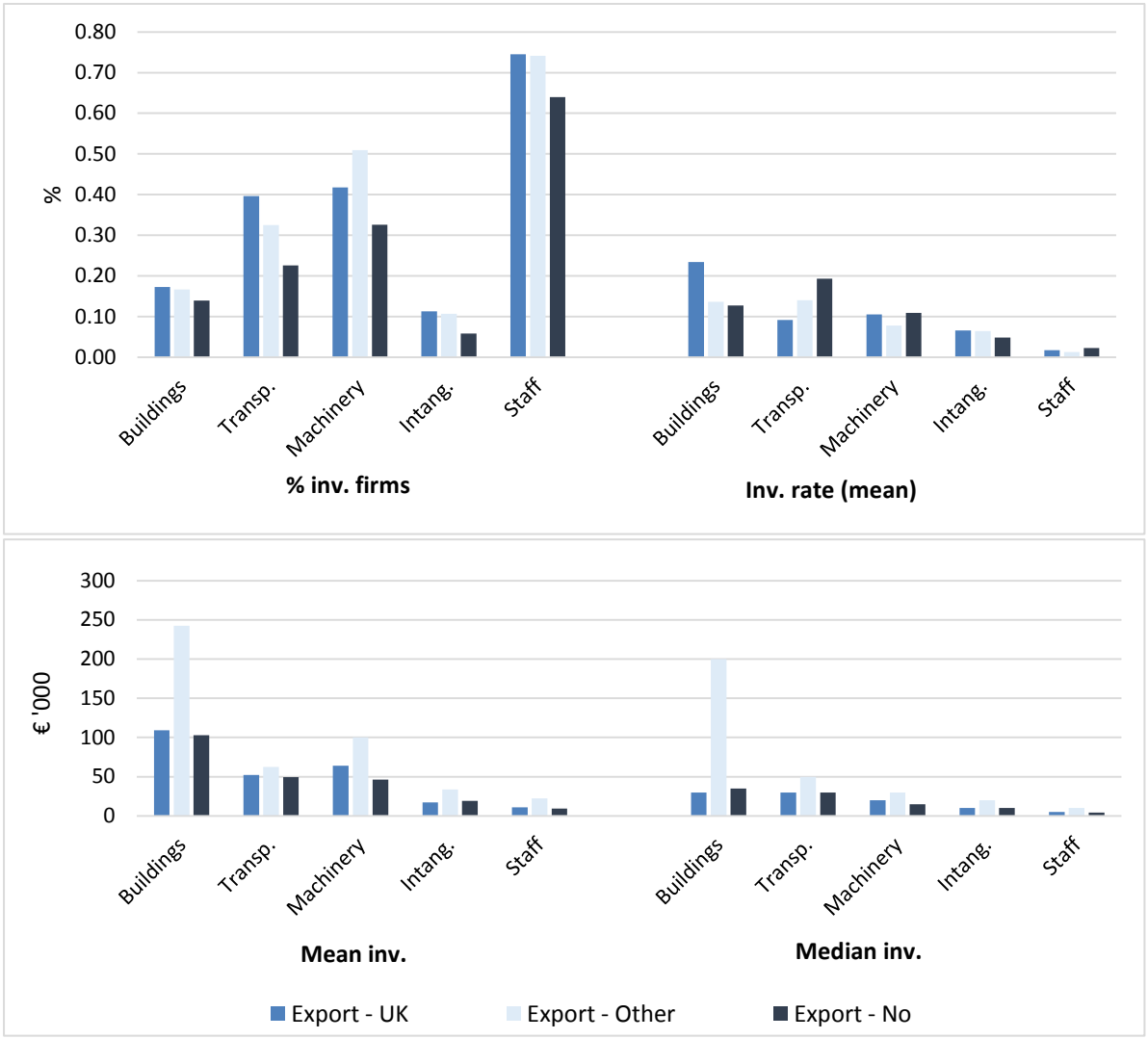
FIGURE 5 INVESTMENT BY TYPE OF ASSET AND SIZE CATEGORY



Source: ESRI.

Larger numbers of small and medium sized firms invested in assets, and particularly in staff, when compared to micro firms in 2016. Similar patterns emerge in terms of mean and median investment levels; however, the investment rates indicate that micro firms are investing the most relative to their size, as expected of firms setting up and starting production activities.

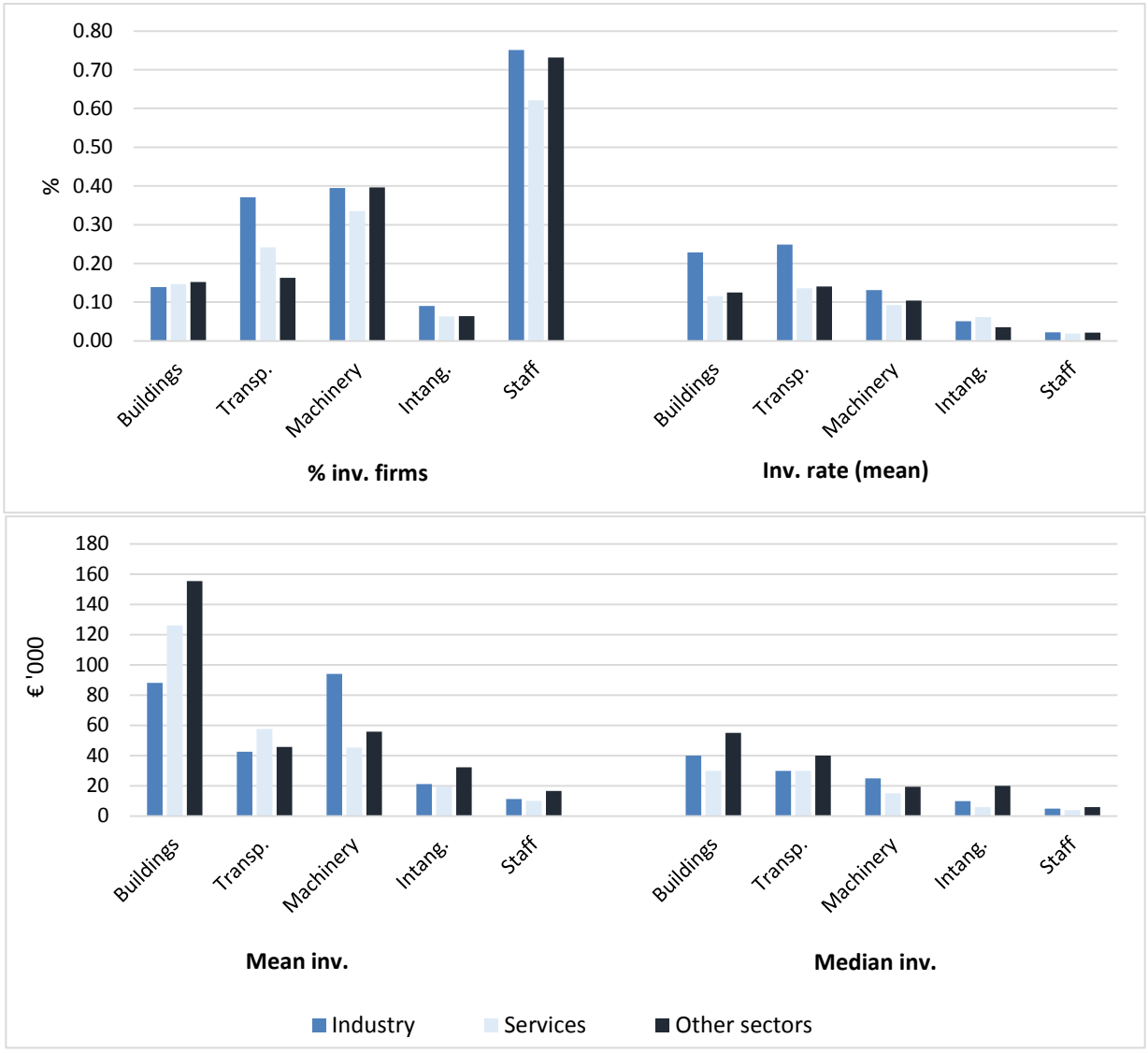
FIGURE 6 INVESTMENT BY TYPE OF ASSET AND EXPORTING STATUS



Source: ESRI.

Higher shares of firms which export their output exclusively to the UK invested in fixed assets (except machinery), intangibles and staff, when compared to the rest of firms. Firms which also export to the rest of the world have the largest mean and median investment levels. The pattern is less clear when considering the investment rates. Non-exporting firms emerge as the main investors in transport, machinery and staff; while firms exporting only to the UK are the largest investors in intangibles and in buildings. This indicates that the very large mean and median investment levels of firms exporting to the rest of the world are somewhat distorted by these firms being larger in terms of total assets.

FIGURE 7 INVESTMENT BY TYPE OF ASSET AND SECTOR



Source: ESRI.

Finally, the same comparison is performed by grouping SMEs in three broadly defined sector categories.[11] A higher share of firms operating in the industry sector invested in assets such as transport and intangibles, and also in staff. Industrial firms also display the highest mean investment rates (except for intangibles). Firms operating in the services sector have the largest average investment rate in intangibles.

4. BARRIERS AND CHALLENGES TO INVESTMENT

In this section, the attitudes of both investing and non-investing firms are explored, to identify potential investment and capacity constraints that might be affecting SME growth and development.

11 See Appendix III for further details regarding the sector composition.

For investing firms, the focus is placed on whether they considered their level of investment in different types of assets to be adequate or insufficient; while for non-investing firms, the possible reasons behind the lack of investment activities are explored. The purpose of this analysis is to identify potential investment constraints faced by Irish firms which may need to be addressed.

TABLE 2 FIRMS' PERCEPTIONS

	Invested less	Invested adequately	Adequate capacity	Not adequate capacity	Capital gap
Total	**9.37**	**46.36**	**33.4**	**11.87**	**21.24**
Young	7.98	44.33	34.66	13.03	21.01
Old	10.47	46.18	32.39	10.96	21.43
Export – Yes	10.47	58.53	20.93	10.08	20.55
Export – No	9.02	41.22	37.32	12.44	21.46
Industry	10.62	46.9	32.3	10.18	20.8
Services	9.04	44.59	33.63	12.74	19.77
Other sectors	9.04	46.33	33.9	10.73	19.77
Micro	7.61	38.26	39.15	14.99	22.6
Small/Medium	10.62	50.4	29.32	9.67	20.29

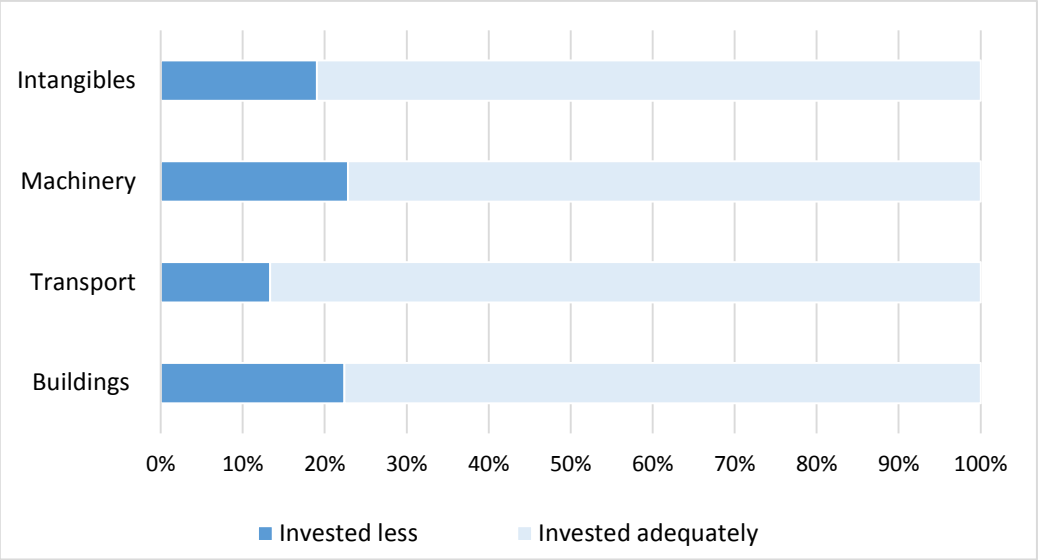
Source: ESRI.
Note: Rows add up to 100 per cent (for Columns 1 to 4).

The first row in Table 2 shows the percentage breakdown of firms' reported attitudes towards their investing behaviour. Overall, 46.36 per cent of firms reported they were satisfied with the level of investment undertaken in 2016, while 33.4 per cent of firms stated adequate capacity as the reason not to invest in the same year. This implies that over three-quarters of firms were satisfied with their decision whether to invest or not. Around 9 per cent of firms invested less than they would have liked to, and 11.87 per cent reported not investing despite their perceived inadequate capacity. Further details on the latter group of firms are provided below.

The fifth column in Table 2 reports the percentage of firms reported to be unsatisfied with their capital levels (i.e. a combination of firms that perceived they have inadequate capacity and those that were dissatisfied with the investment levels). Approximately one-in-five SMEs were unhappy with their capacity or investment activities. This finding is broadly in line with the findings in Lawless et al. (2018). Differences can be explained by the definition of investment and the fact that the empirical model in Lawless et al. (2018) takes into account both the extensive and intensive margins of investment.

These attitudes are also explored across a selection of firm categories in Table 2. A higher percentage of micro firms claimed to be satisfied with their current capacity, while most small and medium enterprises reported that they had invested adequately. Only 21 per cent of exporting firms reported that they were satisfied with their capacity, however most firms in this category said they were satisfied with their investment activities. Less variation is observed for firms across age categories and sectors. The majority of firms in these categories reported that they had invested adequately.

FIGURE 8 INVESTING FIRMS' ATTITUDES BY ASSET

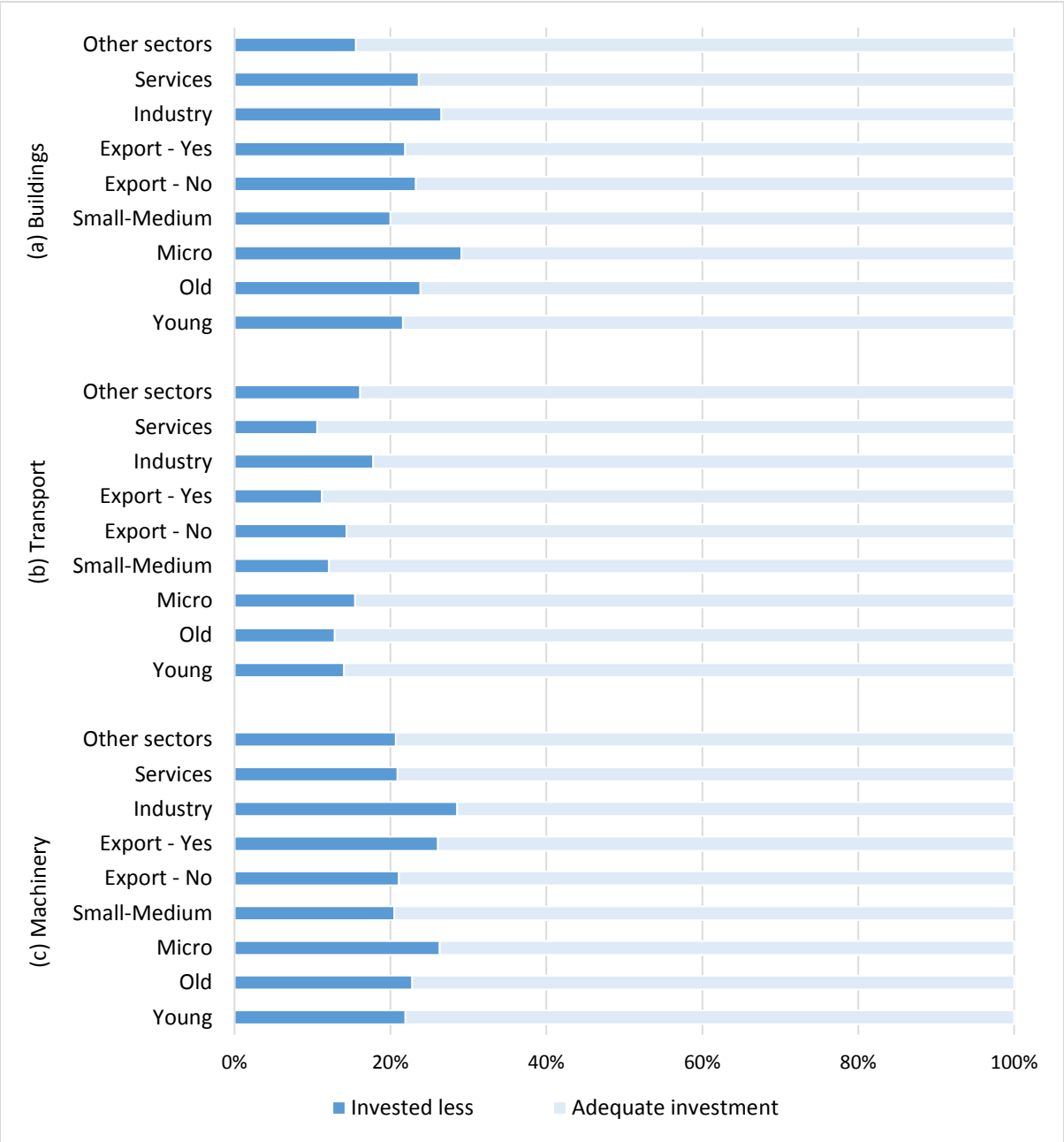


Source: ESRI.

Figure 8 displays the percentages of firms which were satisfied or dissatisfied with the investment made for each type of asset (i.e. the percentages reported in each bar are built using information only for firms which invested in any type of asset).[12] In general, most investing firms reported adequate investment regardless of the asset type. Buildings and machinery are the two types of assets where higher percentages of firms reported unsatisfactory investment, followed by intangibles.

[12] Note that it could be the case that a given firm invested in more than one type of asset and reported different attitudes (satisfied/dissatisfied) for each type of asset.

FIGURE 9 INVESTING FIRMS' ATTITUDES BY ASSET AND CATEGORY



Source: ESRI.
Note: Young firms are defined as those with less than 20 years of operation; and old firms are those with over 20 years of operation.

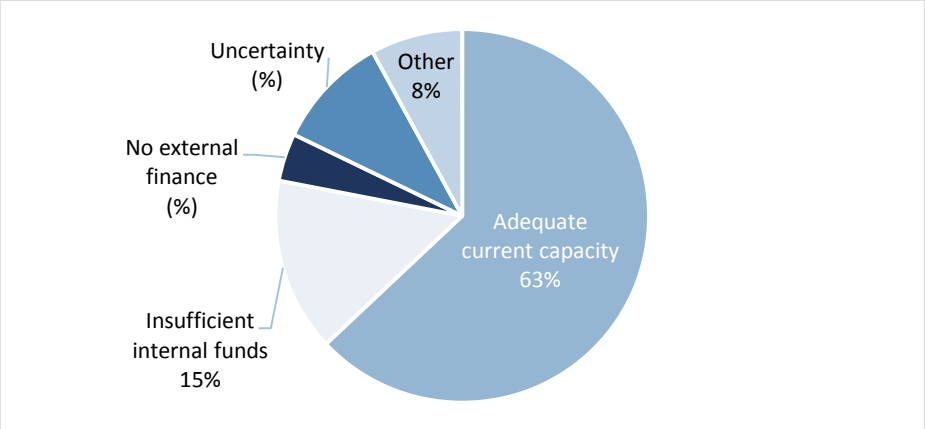
Figure 9 displays reported firms' attitudes towards investment made by asset and also by selected firm categories.[13]

Again, the majority of firms reported adequate levels of investment across all firm categories and assets. Despite this general pattern, larger shares of firms operating in the industry sector reported unsatisfactory levels of investment

[13] Intangible assets are not included in Figure 9 due to the low number of observations preventing further breakdown into categories.

when compared to the other sectors, regardless of the type of asset considered. Dissatisfaction with the level of investment affected higher shares of micro firms, again for all three types of assets considered. A larger share of exporting and older firms reported unsatisfactory investment when compared to non-exporting and younger firms respectively, for machinery, but not for transport and buildings.

FIGURE 10 NON-INVESTING AND UNSATISFIED INVESTING FIRMS' ATTITUDES – TOTAL



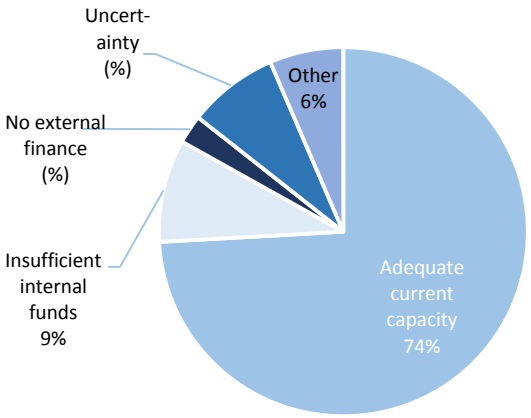
Reason	% of non-adequate capacity firms
Insufficient internal funds	40.64
No external finance	11.16
Uncertainty	26.69
Other	21.51

Source: ESRI.

Figure 10 explores the motives of the sub-sample of Irish SMEs which did not invest and those SMEs which were unsatisfied with the level of investment performed. The majority of firms, 63 per cent, stated that their current capacity was adequate and therefore no investment was deemed necessary. Out of the remaining 37 per cent of firms, the main reason for the unsatisfactory investment (or lack of) was the unavailability of sufficient internal funds, followed by uncertain economic or sector prospects. Only a very small percentage of SMEs, 11.2 per cent, reported the unavailability of external finance as the reason behind their unsatisfactory investment activities.

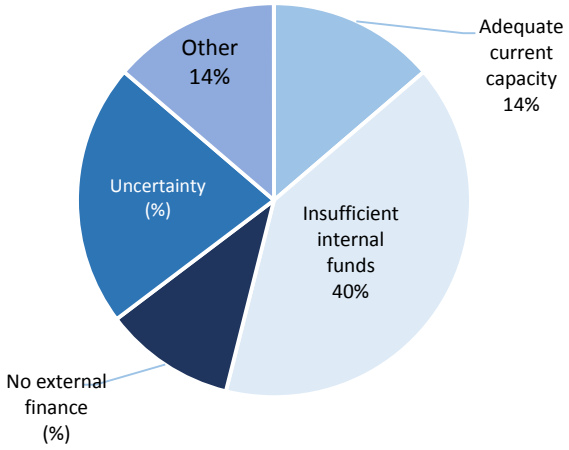
FIGURE 11 NON-INVESTING AND UNSATISFIED INVESTING FIRMS' ATTITUDES

(a) Non-investing firms



Reason	% of non-adequate capacity firms
Insufficient internal funds	34.72
No external finance	9.72
Uncertainty	30.56
Other	25.00

(b) Unsatisfied investing firms



Reason	% of non-adequate capacity firms
Insufficient internal funds	46.59
No external finance	12.50
Uncertainty	25.00
Other	15.91

Source: ESRI.

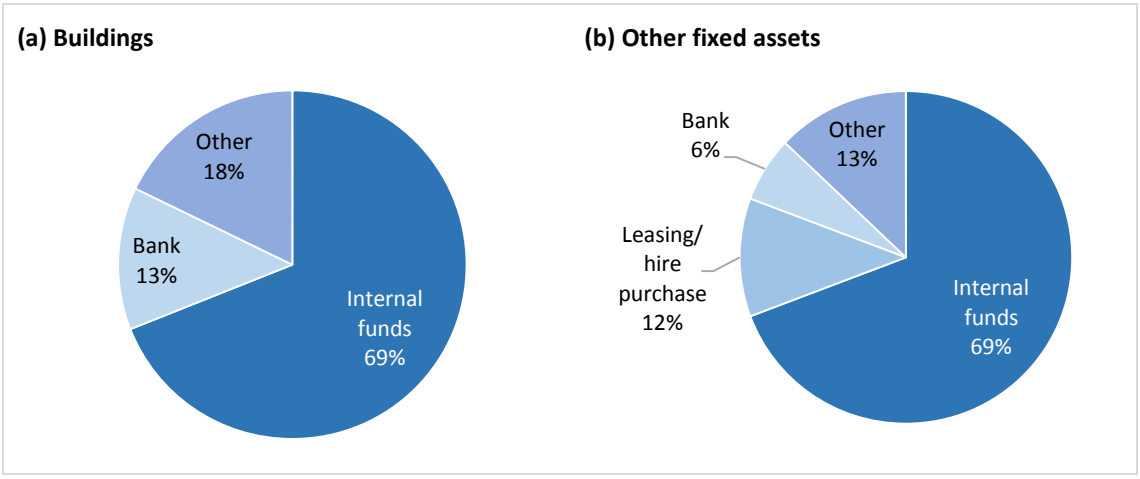
In Figure 11, the statistics previously discussed in Figure 10 are presented for non-investing (Chart (a)) and unsatisfied investing firms (Chart (b)) separately. The percentage of firms that despite having an unsatisfactory capacity did not invest was 26 per cent. Again, the unavailability of internal resources emerged as the main explanatory factor, as for non-investing firms this was main reason behind the lack of investment. In addition, most investing firms reported insufficient internal funds as the motive for their unsatisfactory investment level. An uncertain economic prospect was the next reason in importance for both sub-samples of firms. Difficulties accessing eternal finance appear to be again the least important factor for either not investing or not reaching a satisfactory investment level.

5. EXPLORING INVESTMENT FINANCING AND INVESTMENT PLANNING

After identifying the investment profiles and constraints of Irish SMEs in the previous sections, this section is concerned with the sources firms are using in order to fund investment. The main objective is to identify whether factors such as the costs or the accessibility of the different funding sources might be preventing investment.

The main novelty of the statistics reported in this section is that they provide separated information on the financing sources across different types of assets, from large (i.e. buildings) to smaller fixed assets. This section also examines the liquidity levels of Irish SMEs in 2016.

FIGURE 12 FIXED ASSETS FUNDING SOURCES

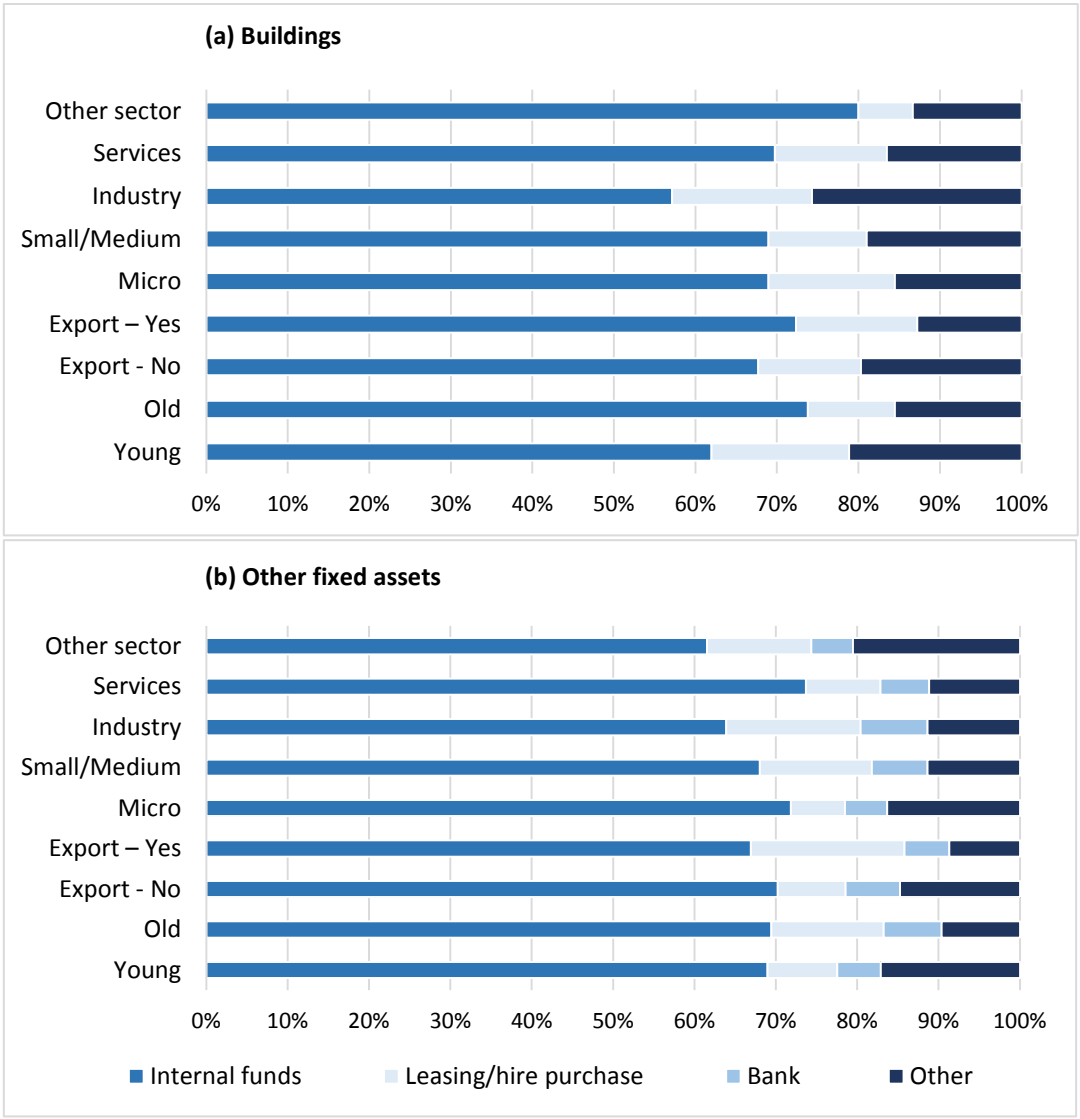


Source: ESRI.
Note: 'Other' category includes owners' contribution, supplier credit or external equity, and leasing-hire purchases for building investment.

Figure 12 displays the percentage of investing firms using different funding sources to cover the costs of investing in large and smaller fixed assets. The majority of firms used internal funds, regardless of the asset type. Larger differences emerge when looking at the use of external financing provided by banks, since 13 per cent of firms resorted to this source of finance to fund building investment as opposed to a much smaller 6 per cent of firms that used this source of finance to fund investment in other types of assets. Overall, Figure 12 suggests that SMEs do not seem to match funding sources and asset nature.

Again, the percentages displayed in Figure 12 for all investing firms are further analysed by different categories in Figure 13. Despite the further breakdown, it is clear that internal funds are the main source of investment funding regardless of the firm category and type of asset.

FIGURE 13 FIXED ASSETS FUNDING SOURCES BY CATEGORY



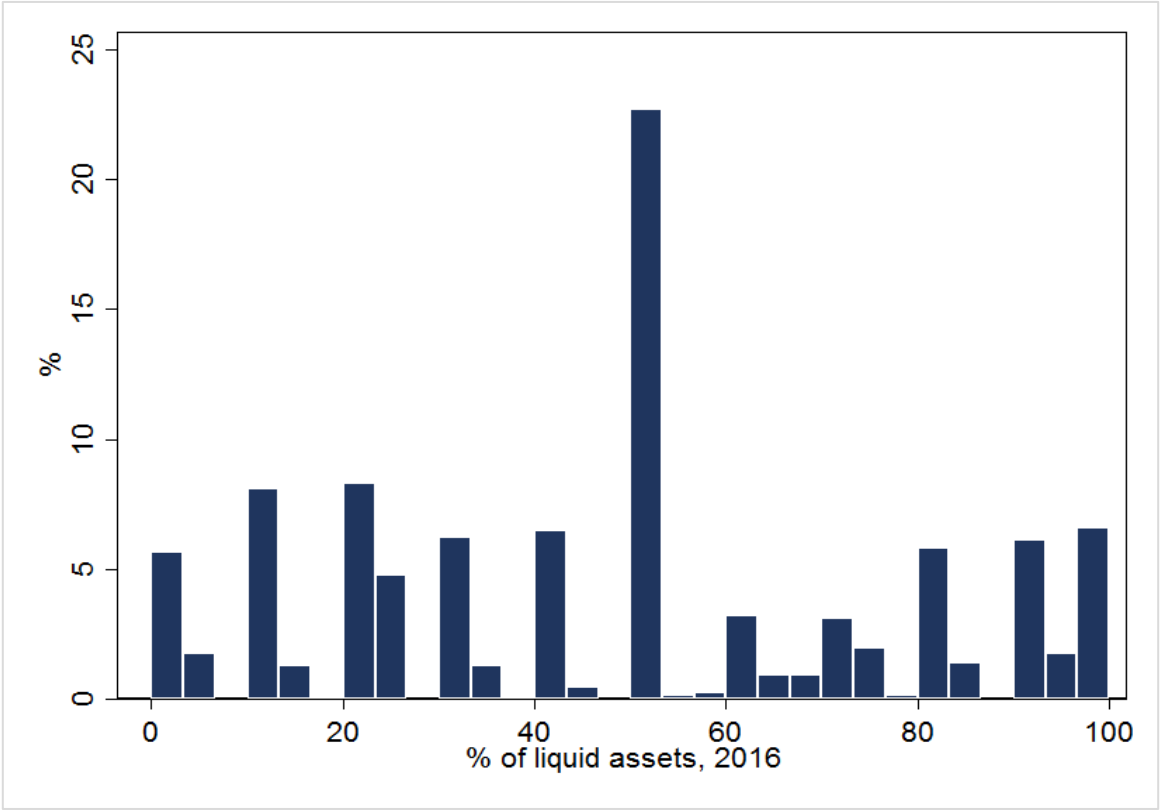
Source: ESRI.
Note: 'Other' category includes owners' contribution, supplier credit or external equity and leasing-hire purchases for building investment. Young firms are defined as those with less than 20 years of operation, and old firms are those with over 20 years of operation.

The largest variation in funding sources for building investment emerges across sectors and age. Bank borrowing was used by larger shares of young and industry sector firms in order to fund investment in buildings. Fewer firms operating in the industry sector used internal funds than in any other category for this type of asset.

Sector categories present again the most variation in funding sources for the case of other fixed assets. Bank borrowing and leasing and hire purchases were used by larger shares of firms operating in the industry sector in order to fund investment in smaller fixed assets.

Given the importance of internal funds as a source of investment financing identified in Figures 12 and 13, the liquidity of SMEs is explored in Figures 14 to 16 and Tables 3 and 4 below.

FIGURE 14 % LIQUID ASSETS DISTRIBUTION



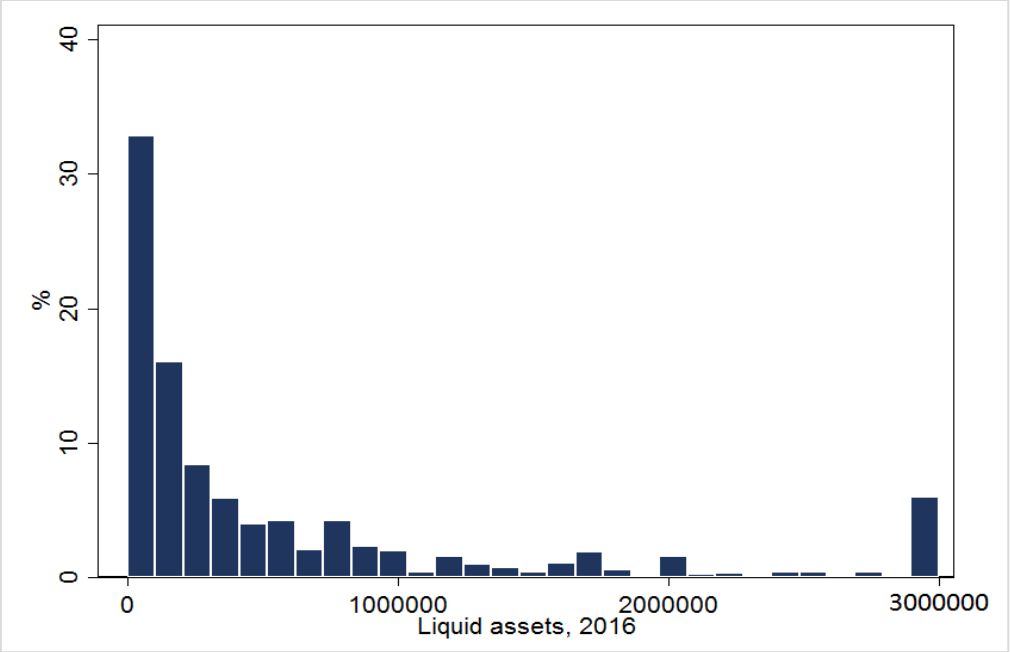
Source: ESRI.

Figure 14 displays the histogram of the distribution of the percentage of liquid assets on total firm assets for all firms. Most firms reported to have at least 50 per cent of assets in the form of liquid assets. A slightly higher concentration of observations below the 50 per cent value can be observed.

According to Table 3, the vast majority of firms, nearly 95 per cent, reported availability of liquid assets in 2016. The average level of liquid assets was €765,493; however the median was €225,000, again much lower than the mean. The distribution of the value of liquid assets across all firms, displayed in Figure 15, is highly skewed to the left indicating a higher concentration of firms around the lower values of liquid assets.

The percentage of firms with liquid assets, and mean and median value of liquid assets, are all higher when considering investing firms only.

FIGURE 15 LIQUID ASSETS LEVEL



Source: ESRI.
Note: Value capped at €3,000,000.

The average values of two different ratios are also reported in the last two columns of Table 3. The first one is the investment-to-liquid assets ratio, which gives an indication of the availability of liquid assets relative to the investments made by investing firms. On average, the value of investments represented roughly 40 per cent of the liquid asset level of both the total sample and investing firms in 2016.

TABLE 3 FIRM LIQUIDITY

	% firms with liquid assets	Liquidity levels		Ratios	
	Mean	Mean	Median	Investment/ Liquid assets	Liquid assets/ Turnover
Total	94.82	765,493	225,000	-	0.35
Investing firms	97.50	897,498	269,000	0.40	0.32

Source: ESRI.

The second ratio is the level of liquid assets over the level of firm turnover in 2016. This can be interpreted as the 'saving' capacity of firms. The average value of this ratio for all firms was 0.35, indicating that liquid assets represented on average about one-third of total turnover in 2016. Unsurprisingly, the ratio is lower on average for investing firms. This ratio is reported by firm category in Table 4 and the distribution for all firms is displayed in Figure 16.

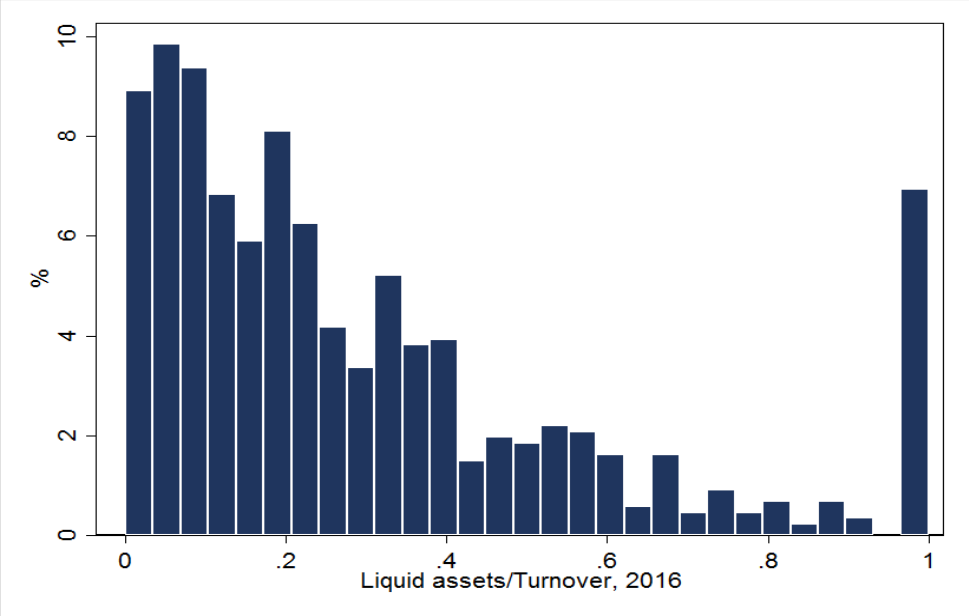
TABLE 4 LIQUID ASSETS/TURNOVER RATIO BY CATEGORY

	Liquid assets/Turnover	
	Total	Investing firms
Age category 1	0.28	0.26
Age category 2	0.35	0.30
Age category 3	0.38	0.35
Export – UK	0.39	0.46
Export – Other	0.37	0.34
Export – No	0.34	0.28
Micro	0.38	0.34
Small	0.32	0.30
Medium	0.36	0.33
Industry	0.31	0.29
Services	0.37	0.33
Other sectors	0.34	0.28

Source: ESRI.

The ratio is higher on average for older and more established firms, exporting firms, micro firms and firms operating in the services sector. When investing firms are considered separately, all ratios are on average lower, except for UK exporting firms. For this category of firms, the average ratio of investing firms is higher than for all firms. The distribution of the liquid assets-to-turnover ratio is again skewed to the left.

FIGURE 16 LIQUID ASSETS/TURNOVER RATIO



Source: ESRI.
Note: Ratio capped at 1.

The ratio of total investment level to the level of liquid assets in 2016 is also explored in more detail in Table 5. The first two columns display the percentage of firms classified above or below 0.5 ratio value, respectively. The third column displays the percentage of observations for which the value of the ratio is 1 or above.

TABLE 5 INVESTMENT/LIQUID ASSETS RATIO

	0 < Ratio < 0.50	0.50 ≤ Ratio < 1	Ratio ≥ 1
Total	**75.32**	**12.98**	**11.70**
Age category 1	64.79	19.72	15.49
Age category 2	72.53	14.84	12.64
Age category 3	81.11	9.22	9.68
Export – UK	80	11.67	8.33
Export – Other	82.14	4.76	13.10
Export – No	72.7	15.34	11.96
Micro	64.85	18.18	16.97
Small	81	11.31	7.69
Medium	80.95	7.14	11.9
Industry	68.32	14.85	16.83
Services	76.45	12.63	10.92
Other sectors	80.26	11.84	7.89

Source: ESRI.
Note: Age category 1, less than ten years; age category 2, ten to 25 years; age category 3, more than 25 years.

Three-quarters of investing firms had an investment-to-liquid assets ratio lower than 0.50, which indicates that the value of investments made in 2016 represented less than half of their level of liquid assets in the same year. For some firm categories however even higher percentages of firms (above 80 per cent) had a ratio below 0.50, such as for firms operating for over 25 years, exporting firms or small and medium sized firms. This finding suggests a low need for external funds in order to invest.

The third column provides a rough indication of the percentage of investing firms that would not be able to fund their 2016 investments solely resorting to internal resources, therefore requiring external finance sources to cover the level of investment. This is the case for about 12 per cent of all investing firms. Some variation exists however when this figure is disaggregated by firm category. Almost 18 per cent of firms in the micro and industry sector categories have a ratio above 1, suggesting that these types of firms may have higher need for external finance.

TABLE 6 LENGTH OF LONG-TERM DEBT

	Mean	Median	Min.	Max.
Total	**8.59**	**7**	**3**	**60**
Less 10 years	7.74	5	3	60
10-25 years	7.44	6	3	20
More 25 years	9.60	8	3	30
Micro	8.48	6	3	25
Small	8.49	6	3	60
Medium	8.92	7	3	30

Source: ESRI.
Note: Age category 1, less than ten years; age category 2, ten to 25 years; age category 3, more than 25 years.

The low use of external funds is reflected in the prevalence of long-term debt uptake for SMEs in the sample. Almost three-quarters of firms (73.6 per cent) did not have any long-term debt in 2016. Notably, the percentage of firms without long-term debt was slightly higher (76.2 per cent) for firms operating for less than ten years. These firms would have been established predominantly after the financial crisis, and therefore they would not have had debt overhang originating from before the crisis. Table 6 provides an overview of the average length of the long-term debt for the remaining one-quarter of SMEs which had incurred debt. The median debt term was seven years, although variation across selected firm categories can be noted. The median is the lowest for firms operating for less than ten years. It increases with firm age, as well as with firm size.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The new investment and assets module on the credit demand survey was developed to address clear data gaps in our understanding of Irish SME investment activity. A number of important conclusions emerge that provide insight for policy but also suggest additional avenues for future research.

In terms of the patterns of investment across Irish SMEs, it is clear there are considerable differences by the type of asset. Overall 80 per cent of SMEs invested in either staff or other assets. However, this was mainly driven by staff investment which was undertaken by nearly 70 per cent of small and medium companies. The share of companies investing in fixed assets (building, machinery, equipment) was 50 per cent. Only 7 per cent of SMEs invested in intangible assets. The median investment level was €22,000 which represented 20 per cent of the size of total assets of the firm on average. Investment levels were higher for fixed assets (€45,000 median) than for staff or intangibles. Indeed, the median investment level was 4.5 times higher for fixed assets than intangible assets.

A critical element in understanding the SME sector in Ireland is to capture the heterogeneous nature of enterprises. We explore the differences across firms by focusing on a number of characteristics including age, size, exporting status and sector. We summarise some of the key highlights which document these differences (provided in Figures 4 to 7). While older firms invest, the rate of investment (how much the firm invests relative to its total assets) is higher for young firms and micro enterprises. This reflects the fact that while larger firms tend to invest greater volumes in absolute terms, the investments do not represent as large a commitment relative to their existing asset base. Industrial firms invest more than in other sectors, in particular in transport assets. In terms of the trading status of firms, non-exporters displayed higher average investment rates in transport and machinery, but not for buildings. Exporting firms invested on average more in intangibles.

Having profiled investment activity across SMEs, of particular importance from a policy perspective is to ascertain whether or not SMEs are investing sufficiently. We find that just under 80 per cent of Irish firms indicate they are satisfied either with the level of investment they undertook or the capacity they currently have if they didn't invest. This finding holds in general across different asset types and firm characteristics. This suggests a capital gap exists for one-in-five enterprises. Some differences across firms exist with exporters to the UK indicating a lower level of satisfaction. Medium-sized enterprises are the most satisfied with their own capacity.

For those firms that did face a capital gap, the main reasons given were a lack of internal funds (40.6 per cent), uncertainty (26.7 per cent) and other reasons (21.5 per cent). Access to external finance was only suggested as a barrier by 11.2 per cent of the firms with a capital gap. This finding accords with the information we collated on how firms finance their investment. For both building assets and non-building assets, nearly 70 per cent of firms reported the use of internal funds as the main source to fund investment regardless of the asset type. Although external funding provided by banks was found to be used by more firms to fund investment in buildings as opposed to smaller fixed assets, the reliance on internal funds is widespread.

Finally, for the first time using survey data, we collected information on liquid assets. We found a high level of liquid asset holdings amongst Irish corporates with a median of €225,000 representing 35 per cent of turnover on average. Furthermore, we found that taking the average level of investment by firms as a share of liquid assets, only one-in-ten investing firms did not have sufficient liquid assets to cover their investments.

To reflect on where this leaves our understanding of SME investment from a policy perspective, a number of points are noteworthy. It is clear very different patterns of investment exist across types of assets and Irish firms are more focused on investments in staff and fixed assets than intangibles. While intangible assets may reflect a very important component of the Irish economy, in particular for the vibrant multinational sector, they are less of a focus for small Irish companies. Policies to foster investment activity for domestic firms in such assets, where these assets are complementary to their production structure, would be welcome.

Irish firms are funding a high share of investment using internal funds. They also appear to have considerable liquid assets at their disposal. Coupled with the fact that for firms with sub-optimal investment, very few indicate external financing is a barrier; this would suggest any perceived sluggishness in investment appetite may be originating on the demand side rather than the supply side. Indeed, using internal funds for large fixed asset investments is traditionally used as an indicator of constrainedness and evidence of a supply-side market failure. However, in an Irish context, such a perceived lack of investment demand and a low level of borrowing appetite may be down to legacy crisis effects including risk aversion or an unwillingness to become indebted, as opposed to (or in conjunction with) supply-side tightness. In addition, the crisis may have also resulted in reduced consumer confidence in the banking system, and in increased difficulties in the application process such as high application costs and imperfect screening of applicants (Brown and Lee, 2014). It could also be due to the unsuitable nature of the financing products available in the market such as long-term debt finance. Alternatively, recent research in the UK found that some SMEs were ‘reluctant borrowers’ rather than ‘discouraged borrowers’ (Brown and Lee, 2014), due to an unwillingness to borrow arising from factors such as a resistance to any outside intervention that might come from banks or other types of lenders.

However, detailed exploration of the issues raised is outside the scope of the analysis performed in this paper and further research is required to identify the nature of these effects. It is clear that given their liquidity levels, Irish firms would have the scope to increase investment if they so wished.

Finally, while our analysis focuses on Irish SMEs, another topic that merits further research is a comparison of our findings with other EU Member States, through the use of alternative data sources such as the Survey on the Access to Finance of Enterprises (SAFE). In addition, a regression analysis would also provide interesting insights in future empirical research on this topic.

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APPENDIX I

The table below contains a list of the variables obtained from the 'Investment activity and company assets' module in the CDS. The variables used to obtain the statistics presented in this article are in bold.

TABLE A.1 VARIABLE DESCRIPTION

Survey variables	Derived variables
Value of total assets, 2016	
% of fixed assets, 2016	Value of fixed assets, 2016
% of liquid assets, 2016	**Value of liquid assets, 2016**
% change in value of total assets from 2015 to 2016	Value of total assets, 2015
Value of turnover, 2016	
% change in value of turnover from 2015 to 2016	Value of turnover, 2015
% of turnover that corresponded to profit/loss in 2016	Value of profit/loss, 2016
% of turnover that corresponded to profit/loss in 2015	Value of profit/loss, 2015
Number of employees, 2016	
Number of employees, 2015	
Value of outstanding debt, 2016	
% change in value of outstanding debt from 2015 to 2016	Value of outstanding debt, 2015
Average interest rate paid, 2016	
Average interest rate paid, 2015	
Average term for long-term outstanding debt	
Value of investment in buildings, 2016	
Value of investment in transport equipment, 2016	
Value of investment in machinery/other equipment, 2016	
Value of investment in intangible assets, 2016	
% change in value of building investment from 2015 to 2016	Value of investment in buildings, 2015
% change in value of transport investment from 2015 to 2016	Value of investment in transport equipment, 2015
% change in value of machinery investment from 2015 to 2016	Value of investment in machinery/other equipment, 2015
% change in value of intangibles investment from 2015 to 2016	Value of investment in intangible assets, 2015
% of building investment related to expansion/growth, 2016	
% of transport investment related to expansion/growth, 2016	
% of machinery investment related to expansion/growth, 2016	
% of intangibles investment related to expansion/growth, 2016	
% of building investment related to expansion/growth, 2015	
% of transport investment related to expansion/growth, 2015	
% of machinery investment related to expansion/growth, 2015	
% of intangibles investment related to expansion/growth, 2015	

Contd.

TABLE A.1 ***CONTD.***

Building investment satisfaction, 2016	
Transport investment satisfaction, 2016	
Machinery investment satisfaction, 2016	
Intangibles investment satisfaction, 2016	
No investment/Invested less than desired – Reasons, 2016	
Building investment – Funding sources, 2016	
Other fixed assets investment – Funding sources, 2016	
Value of staff training, 2016	
Value of staff training, 2015	
Internal rate of return calculation dummy	
Hurdle rate calculation dummy	
Investment uncertainty level	

Source: ESRI.

APPENDIX II

TABLE A.2A PERCENTAGES OF INVESTING FIRMS BY CATEGORY

	Total assets	Buildings	Transport	Machinery	Intangibles	Staff
Export – UK	63.39	17.24	39.66	41.74	11.30	74.55
Export – Other	70.00	16.67	32.48	50.96	10.69	74.15
Export – No	46.40	13.94	22.60	32.62	5.83	63.96
Age category 1	45.79	12.31	16.75	40.40	8.63	72.25
Age category 2	50.54	12.16	26.74	31.87	7.26	64.63
Age category 3	53.36	17.55	27.75	37.48	6.01	65.77
Micro	42.25	11.64	22.53	26.71	5.65	43.68
Small	59.40	15.80	30.67	41.60	8.73	80.32
Medium	53.30	18.61	21.59	44.00	5.98	92.34
Industry	54.58	13.89	37.05	39.44	9.06	75.11
Services	49.66	14.68	24.15	33.55	6.35	62.10
Other	51.83	15.23	16.33	39.59	6.44	73.14

Source: ESRI.

TABLE A.2B INVESTMENT LEVEL AND RATES BY CATEGORY

		Total assets	Buildings	Transport	Machinery	Intangibles	Staff
Export – UK	*Mean*	105,268	109,250	52,065	64,052	17,385	10,845
	Median	52,000	30,000	30,000	20,000	10,000	5,000
	Rate	0.20	0.23	0.09	0.11	0.07	0.02
Export – Other	*Mean*	160,718	242,308	62,351	100,318	33,767	22,243
	Median	70,000	200,000	50,000	30,000	20,000	10,000
	Rate	0.18	0.14	0.14	0.08	0.06	0.01
Export – No	*Mean*	91,850	103,000	49,390	46,330	19,402	9,550
	Median	37,000	35,000	30,000	15,000	10,000	4,270
	Rate	0.23	0.13	0.19	0.11	0.05	0.02
Age category 1	*Mean*	87,223	89,083	65,546	39,610	23,153	7,693
	Median	45,000	55,000	50,000	15,000	5,000	400
	Rate	0.31	0.25	0.22	0.18	0.06	0.03
Age category 2	*Mean*	96,530	114,903	49,232	60,622	22,601	11,594
	Median	35,000	25,000	30,000	19,000	10,000	4,270
	Rate	0.25	0.13	0.17	0.11	0.07	0.02
Age category 3	*Mean*	118,528	137,455	51,057	64,095	20,682	12,876
	Median	50,000	42,500	30,000	20,000	10,000	500
	Rate	0.16	0.11	0.16	0.07	0.04	0.01
Micro	*Mean*	54,671	66,659	39,022	22,324	9,383	3,441
	Median	20,000	15,000	25,000	8,000	5,000	2,000
	Rate	0.34	0.20	0.28	0.15	0.06	0.03
Small	*Mean*	101,712	118,395	55,485	52,179	28,095	10,063
	Median	50,000	42,500	40,000	20,000	20,000	5,000
	Rate	0.17	0.12	0.12	0.09	0.06	0.02
Medium	*Mean*	208,662	210,864	70,888	120,612	29,645	23,197
	Median	120,000	112,000	50,000	50,000	15,000	12,600
	Rate	0.09	0.09	0.03	0.06		0.01
Industry	*Mean*	119,618	88,143	42,672	93,944	21,152	11,220
	Median	63,000	40,000	30,000	25,000	10,000	5,000
	Rate	0.37	0.23	0.25	0.13	0.05	0.02
Services	*Mean*	99,962	126,107	57,573	45,428	19,592	10,131
	Median	35,500	30,000	30,000	15,000	6,000	4,000
	Rate	0.18	0.12	0.14	0.09	0.06	0.02
Other sector	*Mean*	106,814	155,433	45,656	55,833	32,354	16,605
	Median	45,000	55,000	40,000	19,500	20,000	6,000
	Rate	0.17	0.12	0.14	0.10	0.04	0.02

Source: ESRI.

APPENDIX III

The two tables in this Appendix provide information on the characteristics of the sample by sector. In the statistics reported, construction and manufacturing sectors have been grouped in the *Industry* category; and wholesale and retail (W&R), hotels and restaurants (H&R) and professional and scientific (P&S) have been grouped in the *Services* category.

TABLE A.3A FREQUENCY (NUMBER OF OBSERVATIONS – UNWEIGHTED)

Frequency (no. observations) – Unweighted						
	Construction	Manufacturing	W&R	H&R	P&S	Other
Less than 10 years	22	21	65	44	52	44
10 to 25 years	53	69	167	54	87	103
More than 25 years	63	94	225	50	117	89
Micro	61	60	191	26	128	125
Small	56	81	216	71	83	63
Medium	21	43	50	51	45	48
Export – UK	6	31	52	0	25	14
Export – Other	9	61	38	1	48	28
Export – No	123	88	365	147	181	192
Total	138	184	457	148	256	236

Source: ESRI.

TABLE A.3B PERCENTAGE OF OBSERVATIONS (UNWEIGHTED)

% of observations – Unweighted						
	Construction	Manufacturing	W&R	H&R	P&S	Other
Less than 10 years	1.55	1.48	4.58	3.1	3.66	3.1
10 to 25 years	3.74	4.86	11.77	3.81	6.13	7.26
More than 25 years	4.44	6.62	15.86	3.52	8.25	6.27
Micro	4.3	4.23	13.46	1.83	9.02	8.81
Small	3.95	5.71	15.22	5	5.85	4.44
Medium	1.48	3.03	3.52	3.59	3.17	3.38
Export – UK	0.43	2.2	3.69	0	1.77	0.99
Export – Other	0.64	4.33	2.7	0.07	3.41	1.99
Export – No	8.73	6.25	25.9	10.43	12.85	13.63
Total	9.73	12.97	32.21	10.43	18.04	16.63

Source: ESRI.

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ISSN **0376-7191**
ISBN **978-0-7070-0467-9**

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